RCVS SETTING VETERINARY STANDARDS

VISITATION TO THE UNIVERSITY OF LIVERPOOL 2012

Visitation to the University of Liverpool

19 - 23 November 2012

Report to the Council of the Royal College of Veterinary Surgeons (RCVS) in accordance with Section 5 of the Veterinary Surgeons Act 1966,
and
to the Education Committee of the European Association of Establishments for Veterinary Education (EAEVE) in compliance with European Directive 2005/36/EC

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Contents

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Introduction

1. This report is prepared for the RCVS in accordance with the provisions of Section 5(1) of the Veterinary Surgeons Act 1966, "*for the purpose of securing that the courses of study to be followed by students training to be veterinary surgeons and the standard of proficiency required for registration in the register shall be such as sufficiently to guarantee that persons registered in the register will have acquired the knowledge and skill needed for the efficient practice of veterinary surgery*".

2. The report is also prepared on behalf of the European Association of Establishments for Veterinary Education (EAEVE) for report to the Education Committee for Veterinary Education (ECOVE) – a joint committee of EAEVE and the Federation of Veterinarians of Europe.

3. Visitors took account of the Directive of the Council of the European Communities (2005/36/EC, Annex V.4, section 5.4.1) of September 2005 concerning the requirements for the study programme for veterinary surgeons.

4. The evaluation was undertaken in accordance with the evaluation criteria defined by EAEVE and agreed at the EAEVE General Assembly in Copenhagen, 8 May 2008, these criteria having been fully incorporated within the RCVS procedures for visitations. The visit was conducted in accordance with the procedures set out in the RCVS document "Criteria and Guidance for RCVS Approval of Veterinary Degree Courses in the UK and Overseas", November 2011 edition.

5. The EAEVE Standard Operating Procedures agreed in 2008 comprise two stages, the first covering essential standards for a degree to comply with the requirements of the EU Directive 2005/36, and the second covering standards of ongoing quality assurance. Compliance with the first stage enables the degree to be "approved" by ECOVE. Compliance with both Stages One and Two enables the degree to be "accredited" by ECOVE. For continued recognition by RCVS, a veterinary degree needs to meet the requirements of both stages, covering the quality assurance processes for the degree course.

6. The Visitors were appointed by RCVS Council and included four nominations from EAEVE (including a student), and an observer from the Australasian Veterinary Boards Council with which RCVS has a mutual recognition agreement. The Visitors' remit was to report on the courses of study, staffing, accommodation, and equipment available for training in veterinary surgery, and the other arrangements and facilities for such training in accordance with the EAEVE/RCVS criteria for evaluation.

7. The Visitors were present at the University from 19 – 23 November 2012 inclusive, having attended a briefing session for Visitors on Sunday 18 November. A self-assessment document was prepared by the School and provided to the Visitors two months before the visit. The Visitors were also given access to a well organised repository of supporting documents including examination papers, external examiners' reports, committee records, course material and staff CPD cards, as well as access to the university intranet.

8. The Visitors toured the facilities at the central Liverpool campus and at Leahurst, and stayed together as a group for the majority of the meetings with staff and students. Two Visitors made a

half-day visit to an abattoir on Anglesey on day 2, whilst the remaining Visitors toured the small animal and equine clinical facilities.

9. The Visitors attended a meeting on the final day of the visit with the Vice-Chancellor of the University, Professor Sir Howard Newby, together with Professor Ian Greer, and gave a summary of their main findings and advance notice of the recommendations that would be passed to RCVS and to ECOVE.

10. The Visitors are grateful to the Head of the Veterinary School, Professor Susan Dawson, and all her staff in the School for their help and hospitality during the visit. The Visitors are aware of the considerable amount of work and time that is taken up by these visitations, and thank the staff from the School and the Institutes who made themselves available. The Visitors would also like to thank the employers and alumni who attended the meetings and the undergraduate and postgraduate students who met with the Visitors each day to talk about their experience of studying at Liverpool.

11. The programme for the visit is attached at **Annex 4.**

Changes since the last full visitation in 2003

12. The last RCVS visitation to Liverpool took place in March 2003 with a short follow up visit in 2006 to check the implementation of the Visitors' recommendations, particularly with reference to the small animal hospital.

13. Since then, there have been a number of significant changes to the organisation of the veterinary school, including changes to buildings and facilities, increased student numbers and increased staffing, and a review of the study programme, although the new curriculum is yet to be implemented.

New buildings and major items of equipment

14. The table below lists new buildings and equipment since the 2003 visit. Over the last six years the University has invested some £27million in new buildings which has been funded through endowments and the development campaign as well as over £10million invested from the University capital plan (2011/12).

Date completed	Development	Campus
2007	Small Animal Teaching Hospital (SATH)	Leahurst
2007	Ritchie House office development	Leahurst
2010	Wood Park farm developments including visitors' centre	Leahurst
2010	Extension to Philip Leverhulme Equine Hospital (reception and other accommodation)	Leahurst
2010	Refurbishment of Leahurst House including catering facilities	Leahurst
2010	Refurbished student common room	Leahurst
2011	Build of Equine Intensive Care Unit	Leahurst
2011	Refurbishment of post-mortem room suite	Leahurst
2012	Build of second post-mortem room	Leahurst
2012	Veterinary school offices, student common room, committee rooms	Liverpool
2012	Veterinary teaching suite (dissection room, clinical skills lab)	Liverpool
2012	Refurbishment of teaching laboratories	Liverpool
2012	New facilities for Small Animal Practice	Liverpool
2012	Refurbished research facilities (Infection Biology and Integrative Biology)	Liverpool
2012	Refurbished laboratories (teaching and research)	Leahurst
2013	Leahurst Learning Centre (farm animal practice, teaching labs, seminar rooms, locker rooms and refurbishment of existing offices)	Leahurst

15. The main focus of development up to 2007 was the building of the new £9m small animal teaching hospital at Leahurst. This was in response to the recommendations of the 2003 RCVS/EAEVE visitation. Key features include
    - State of the art operating theatres including an endoscopy suite for arthroscopy and laparoscopy
    - Dedicated cardiology and dermatology suites
    - Full range of imaging modalities including MRI and CT as well as two ultrasound rooms and two computed radiography rooms
    - Radiotherapy unit
    - ICU and isolation facilities
    - Kennelling and support facilities
    - Student accommodation for four students on out-of-hours duties.

16. Other changes at Leahurst included enhancement and better utilisation of the two farms, Wood Park (which is Tesco's Dairy Centre of Excellence) and Ness Heath Farm, which provide students with experience of commercially-run facilities.

17. The old Crown Street veterinary school facilities in Liverpool were demolished in 2012. It was not possible to find replacement premises all on one site, so several developments have been completed to house the various activities. The University capital plan funded the £10m investment and the developments comprise a new school home, a veterinary teaching suite with a wet laboratory able to house up to 160 students for dissection classes and a clinical skills laboratory, a new small animal first opinion practice, new research facilities for infection biology and integrative biology, and new laboratory facilities for microscope and practical classes.

18. In addition to the £10m investment at Liverpool, the University has also matched endowment funding for the Leahurst Learning Centre, due for completion in 2013. This new build and refurbishment of existing space will provide up-dated facilities for the livestock health and welfare division, including the farm animal practice. New seminar rooms, dissection and clinical skills teaching space and student locker facilities will also be provided.

19. A new first-opinion small animal practice building in Liverpool opened in July 2012, and is used by students as part of clinical rotations and electives.

20. BVSc undergraduate student numbers have increased since 2003 from a total of 495 to 608 (23% increase). Academic staff numbers have increased from 73.9 to 112.29 full time equivalents (FTEs) (52% increase) and support staff numbers have increased from 144.79 to 152.94 (6% increase).

21. The BVSc curriculum has undergone review and a new curriculum will be introduced from September 2013 for first year students. In the meantime, some improvements have taken place within individual modules in delivery, assessment, feedback and clinical integration in the earlier years of the course. A clinical skills laboratory in Liverpool is available for students to practise basic clinical skills before starting clinical rotations.

22. The content of public health teaching was reviewed and strengthened after the 2003 visitation. Academic staff numbers in this area have increased.

23. Significant development of Wood Park Farm since 2003 has been funded both by the University and in collaboration with external partners such as Tesco. The herd now performs in the top 10%

for technical performance and the farm has been named the “Tesco Dairy Centre of Excellence”. Engagement with students on the farm has significantly increased.

24. There have been major changes to the organisation of the veterinary school and its position within the University. The School of Veterinary Sciences now sits within the Faculty of Health and Life Sciences – one of three Faculties within the University, the others being Humanities and Social Sciences, and Science and Engineering. More information about the structure is provided in Chapter 2 below.

Summary of the Visitors' findings

25. This report is presented to the RCVS, to ECOVE (through EAEVE) and to the Australasian Veterinary Boards Council which each have separate authority to determine accreditation or approval status within their own jurisdictions. The Visitors worked together as a single team to produce this single report, with two co-chairs representing RCVS and EAEVE.

26. The Visitors were welcomed by staff and students at the University, and were left in no doubt as to the University's commitment at the highest level to veterinary education and the importance the University places on quality assurance and accreditation related matters. The Visitors are grateful to those at the School who were responsible for preparing the Self Evaluation Report and for arranging a schedule that was full but manageable, detailed but efficient.

27. The Visitors compliment the University on its investment in the excellent new facilities on both campuses and in particular on the new preclinical teaching building and small animal practice in Liverpool, as well as the new small animal teaching hospital, the equine facilities and the pathology refurbishment at Leahurst on the Wirral. The Visitors commend the University for the commitment of funds to continue the renewal of the Leahurst site and look forward to seeing the new facility when it is completed.

28. The Visitors noted that the facilities are adequate for current student numbers but are of the view that any further increase would require significant additional investment, in terms of both capital and human resource.

29. Much thought has gone into reshaping the curriculum and it would appear that self-critique and rigorous review of the old curriculum have identified areas for improvement which will be addressed in the new. However, it is not possible for the Visitors to evaluate the new programme fully until it is underway. Attention during the visit was therefore focussed mainly on the programme as it is currently being delivered.

30. Regarding current provision, the Visitors were particularly impressed by the improvements in the area of veterinary public health. However, in more general terms, there is still a need to improve aspects of the old curriculum – which has more than four years left to run - in advance of the phased introduction of the new.

31. There are evident skills in the School's admissions team and the use of the "multiple mini interview" technique for selecting new students, which was first implemented a number of years ago at Liverpool, demonstrates Liverpool's foresight in selection processes. As far as student welfare is concerned, students are well supported and the peer counselling system is exemplary. Furthermore, the students interviewed were unanimous in their satisfaction with the quality of the staff, teaching provision and support.

32. Of particular note for its energy and coverage was the School's provision of a variety of CPD courses, and in particular its involvement in the delivery and assessment of modules from the RCVS's Certificate in Advanced Veterinary Practice programme.

33. The University has recently undergone a major re-organisation of its faculties and associated schools and there were comments made during the visit about the likely impact of these changes. Of course, any major restructuring will have an impact on academic life and undoubtedly many of

the points expressed during the visit have been well rehearsed elsewhere during the re-organisation. It is not the role of a visitation team to comment on how a University chooses to structure itself, apart from the impact of organisational configurations on the quality and sustainability of veterinary medical education. Acknowledging the fact that the implementation of change has been very recent, the Visitors found it difficult to understand exactly how the new structures will work, and understand when the new resource allocation model will eventually appear, and in what form. It would appear that, as it stands, the commitment to underwriting and viring at the Faculty level should ensure the future of both the School and the Institutes, but the sustainability of such models remains untested.

34. One of the requirements for recognition by RCVS and approval by EAEVE is that the veterinary degree programme "*must be afforded the same recognition, status and autonomy as other professional training programmes in the institution*". The parity of treatment of the professional schools (veterinary medicine, medicine and dentistry) and their respective authority meets this criterion, but it would be concerning were the balance to change.

35. It would appear that communication about ongoing changes in structure remains an issue and a number of staff remain confused as to the stage the restructuring has reached and their position in the new structure. A communication plan to address this issue is an urgent requirement in our view.

36. There are clear sensitivities around the reliance on staff now located in other parts of the Faculty and this may place the School's educational provision at risk should recruitment, retention and replacement of staff with veterinary expertise not be protected. The proportion of veterinarians contributing to the programme will require careful monitoring, not just at the point of restructuring, but into the future.

37. With regard to the research-led ethos of the curriculum, there can be no doubt that the focus of the restructuring on "One Health" and the creation of critical mass in key research areas will benefit both the University and individual researchers. However, clinical research and scholarship and career development of those inside the Veterinary School will require careful nurturing if they are not to suffer. Similarly, there is likely to be significant risk of losing the brand identity of "veterinary research", now distributed across several institutes. Certainly there was concern expressed over the fragmentation of veterinary research but it will be some time before it will be known whether these concerns are valid.

38. Specific recommendations that will require consideration by the University include the following :

    a) It is recommended that the Faculty gives priority to the development and communication of a clear, focused and structured strategy for the Veterinary School and to support fully the Head of School and her senior management group to achieve this.
    b) There is an urgent need to address the ownership of current School issues and ensure clear and strong leadership both for the vision of new horizons, but also for the current day-to-day running of the School. This is particularly the case for the "old" curriculum, which will remain a part of School life for at least another four years. The School should work actively to develop and improve the "old" curriculum during the overlap period with the introduction of the new curriculum in line with the suggestions of this report. The communication strategy must be carefully managed, and staff must keep in mind the needs of the present students while planning for the future.

c) Clinical research, scholarship and career development of those inside the Veterinary School must continue to be a focus. Recruitment, retention and replacement of staff with veterinary expertise involved in teaching on the veterinary undergraduate programme must be monitored and protected.
d) The University should consider supporting and improving communication and travel links between the two campuses. This was raised by staff and students alike and relates to both people and data. Upgraded data links and video conferencing improvements to facilitate the delivery and participation in lectures, seminars and meetings across the two sites would make a significant difference to the coherence and quality of campus life for both staff and students.
e) The School must ensure that formative assessment is well embedded in both the old and the new curriculum. The provision of formative assessment is currently inadequate and improvements must be made in the current curriculum.
f) Rigorous outcomes assessment should be implemented in common with best international practice in the sector.

39. It is difficult for the Visitors to comment on the longer term sustainability of the programme, given all the organisational and curricular changes that have happened recently or are yet to be implemented. No major deficiency in Liverpool's current provision was identified, but it is not possible to provide assurance that continued recognition for the standard period of seven or ten years would be an appropriate decision.

40. Because of the restructuring, the lack of a clear financial model and the imminent introduction of a new curriculum**, it is recommended to RCVS, ECOVE and AVBC that Liverpool should continue to be recognised, with a full revisit to be undertaken within three years[1].**

41. The Visitors were grateful for the time afforded by the Vice-Chancellor Professor Sir Howard Newby, and the Pro-Vice-Chancellor Professor Ian Greer who met with the team at the conclusion of the visit to hear these summary findings. The Visitors also thanked Professor Dawson for the constructive and collegial approach with which she leads her School and for her help during the visit.

42. The Visitors were met by a number of students during the visit. If the future of the veterinary profession depends on the commitment, energy and professionalism of these young people, it is in safe hands.

[1] The original recommendation of the Visitors to RCVS was for 'conditional approval' followed by a revisit in three years. The report and University's response was considered by RCVS's Primary Qualifications Sub-Committee on 14 August 2013, and it was agreed that the recommendation to RCVS's Education Committee should be for 'full approval', with a full re-visit to be undertaken in three years.

Conclusion

43. **The Visitors recommend to RCVS, ECOVE and to the Australasian Veterinary Boards Council that the University of Liverpool's BVSc degree course should be approved, subject to receipt of satisfactory annual reports of progress in meeting the Visitors' recommendations. It is recommended that a re-visit should take place in three years time to evaluate the implementation of the new curriculum, the impact of the Faculty reorganisation on the undergraduate veterinary programme, and other recommendations detailed elsewhere in this report.**

Commendations

44. The Visitors commend Liverpool on:

    a. the University's investment in the excellent new facilities on both campuses and in particular on the new preclinical teaching building and small animal practice in Liverpool, as well as the new small animal teaching hospital, the equine facilities and the pathology refurbishment at Leahurst on the Wirral. Further, they commend the University for the commitment of funds to continue the renewal of the Leahurst site.

    b. the Veterinary School's admissions team and the use of the "multiple mini-interview" technique for selecting new students. This process, which was first implemented a number of years ago at Liverpool, demonstrates Liverpool's foresight in selection processes.

    c. the systems for ensuring student welfare, and in particular the peer-counselling system and buddy support system.

    d. the School's commitment to delivering CPD to the profession and in particular its contribution to delivering and assessing the RCVS Certificate in Advanced Veterinary Practice.

Recommendations

45. The Visitors recommend that the University addresses the following issues and reports annually on progress towards their implementation.

    a. The Faculty should develop and communicate a clear, focused and structured strategy for the Veterinary School, and support the Head of School and her senior management group to achieve this. (Chapter 2)

    b. Clinical research, scholarship and career development of those inside the Veterinary School must continue to be a focus. Recruitment, retention and replacement of staff with veterinary expertise involved in teaching on the veterinary undergraduate programme must be monitored and protected. The Faculty of Learning and Teaching as well as the School of Veterinary Science must closely monitor the impact of the structural changes in

the University on veterinary teaching and on the ability to attract veterinary-qualified academic staff to participate in the School and in the veterinary teaching programme. (Chapter 2)

c. The School should make available for inspection the resource allocation model and service level agreements or similar, as soon as they are agreed. (Chapter 3)

d. The Faculty of Learning and Teaching and the School of Veterinary Science should work actively to develop and improve the 'old' curriculum during the overlap period with the introduction of the new curriculum. It should ensure that the communication strategy is carefully managed, and that staff keep in mind the needs of the present students while planning for the future. (Chapter 4)

e. Formative assessment and feedback to students must be provided for all modules in the current curriculum as well as being built into the new curriculum, so that students are able to evaluate their progress toward achieving the required learning outcomes for every teaching module and clinic. (Stage 1 - Chapters 4 and 5, and Stage 2 - Chapter 2)

f. Final versions of the new curriculum should be submitted for inspection with revisit within three years. (Chapter 4)

g. The School should strengthen the coverage of practice management, including financial issues, in both the current and the planned new curriculum. (Chapter 4)

h. The University should ensure that support for veterinary clinical research within the Faculty and School is not eroded so that it can continue to be the cornerstone of veterinary undergraduate teaching, as well as contributing to the advancement of the profession. (Stage 1, Chapter 13 and Stage 2, Chapter 8)

i. The School should give priority to implementing the Student Experience Log (SEL) as soon as this is available in order to integrate learning from EMS with the rest of the curriculum and ensure that tutors have an effective role in guiding students' learning from EMS. The School should ensure – either through the SEL or through other systems the School may develop to supplement it – that timely EMS assessments are captured and provide feedback to both students and EMS providers. (Chapter 14)

j. The School must provide and effectively publicise to students a 24-hour contact number to be used in the event of emergencies that may occur during EMS placements, and provide this with other instructions relating to EMS. (Chapter 14)

k. The School must implement a programme of outcomes assessment, in line with best international practice in the sector. (Stage 2, Chapters 1 and 5)

Suggestions

46. The following suggestions are drawn from the later chapters of this report, and the University will be invited to report on how they are being addressed at the next re-visit.

a) When the new curriculum is introduced, its implementation, planning and resource use should be reviewed after three years. (Chapter 4)

b) Greater efforts should be made to ensure that students are aware of learning outcomes for the modules that they undertake and that they receive effective instruction in how to retrieve information on programme and module learning outcomes from the University's intranet. (Chapter 4)

c) Student numbers should be matched to staff and teaching resources and facilities. (Chapter 4)

d) The use of seminars in the basic sciences should be increased. (Chapter 4)

e) Introduce laboratory or simulation sessions in physiology rather than relying only on desk-based work to provide instruction in this field. (Chapter 4)

f) There should be continued support for and development of web-based and other IT platforms to support teaching and learning, particularly given the split site structure of the School. (Chapter 5)

g) The School should ensure that the learning objectives for modules and the various course components are readily accessible to students, consistently presented, and their relationship to essential Day One Competences, where appropriate, is clear for students to see. (Chapter 5)

h) The School should ensure that a significant proportion of examination questions are refreshed each year. (Chapter 5)

i) It is suggested that students are invited to become more actively involved in discussions to revise the curriculum. (Chapter 5)

j) It is suggested that students' knowledge of biosecurity and biohazard procedures are assessed before they are allowed to proceed with laboratory and practical sessions if the School relies on referring students to the intranet to gain this information. (Chapter 5)

k) The School should review the policy regarding vaccinations required by students. (Chapter 5)

l) The School should seek ways to improve the transport and other communications links (eg. high speed data/video links) between Leahurst and Liverpool, especially with a view to introducing vertical integration within the new curriculum. (Chapter 5)

m) The School should seek to avoid timetables encroaching on Wednesday afternoons, if possible, so that veterinary students are free to participate in university-level sports, not

only for their physical health but also to assist their identification with the wider university community. (Chapter 5)

n) Attention should be given to ensuring that facilities continue to be appropriate for student numbers. If a decision is made to increase numbers, a business plan would be needed to show how facilities and clinical case numbers would be increased accordingly so that the quality of student experience would not suffer. (Chapter 6)

o) The School should clarify responsibility for health and safety and ensure that health and safety compliance across all sites is monitored and actioned promptly, including first aid boxes. (Chapter 6)

p) The notice detailing the rules necessary for the care of animals and the prevention of the spread of infection from the isolation facility need to be sited outside the unit where they can be observed prior to entry. (Chapter 6)

q) The School should consider expanding the range of abattoirs visited by students to give them experience of other species such as cattle and pigs. This could be covered by EMS placements. (Chapter 6)

r) The School should continue to develop its data and information technology facilities. (Chapter 8)

s) The School should consider increasing the number of reading/private study spaces at the Leahurst library. Increased student numbers should be accompanied by increased study places in the Library. (Chapters 5 and 8)

t) It is suggested that additional time and resource is invested in ensuring that students are well prepared for EMS, particularly for clinical EMS, so that students are aware of their obligations, expected behaviour and how to get the most from their EMS placements including setting desired learning objectives. (Chapter 14)

u) The School is encouraged to consider expanding and/or promoting the opportunities for international student and staff exchange through Erasmus and other similar programmes. (Stage 2, Chapter 9)

Stage 1

Findings and comments from the Visitors in relation to RCVS and EAEVE essential requirements

Chapter 1 - Objectives

(NB. Text appearing in the shaded boxes is taken from the EAEVE/RCVS Stage One requirements)

The objectives of veterinary training institutions are to provide adequate, ethical, research-based veterinary training that enables the new graduate to perform as a veterinary surgeon capable of entering all commonly recognised branches of the veterinary profession immediately on graduation or of being capable of performing adequately after a generally accepted period of practical experience. The training must cover the broad requirements for veterinary graduates and comply with EU Directive 2005/36/EC. Veterinary education should be based on scientific grounds and proven experience and provide students with adequate learning opportunities thus laying the basis for life-long learning. Considering that more than 50% of active veterinarians in Europe are engaged in clinical practice, a clinical focus is expected to be maintained during the basic training in veterinary medicine.

In addition the institutions should conduct research, provide postgraduate and specialist training and play a role in continuing veterinary education (see also Stage Two).

They should, furthermore, provide services to members of the veterinary profession and the community as a whole.

Findings

1.1 The University of Liverpool has five key priorities: improving research performance, positioning itself as a global university, driving knowledge exchange and innovation, enhancing student experience, and extending widening participation.

1.2 The School of Veterinary Science has set itself a vision statement "to be a centre of regional, national and international excellence in research and learning in animal health and welfare". The School has set itself the following objectives:-

- to maintain and develop excellence in veterinary research so as to underpin the learning and teaching environment and improve the health and welfare of animals and humans; to foster collaborative and inter-disciplinary research both within and outwith the University of Liverpool
- to continue to deliver excellence in learning and teaching at clinical, paraclinical and preclinical levels; to be innovative and relevant to the current and future needs of veterinary graduates
- to maintain and further develop international excellence in clinical veterinary studies, and to deliver such excellence in animal care through the provision of outstanding Hospital and Practice facilities
- to be aware of and responsive to the wider and developing role of veterinary science in contributing to and informing social and environmental issues
- to act as a regional and national resource for the veterinary profession, the animal industry and the general public through the provision of education, continuing professional development and services; and to act as a particular resource and focus for the alumni of the Veterinary School.

Comments

1.3 These aims and objectives are appropriate for the professional veterinary degree programme.

Chapter 2 - Organisation

Veterinary training must take place within institutions of higher education (university, a higher institute providing training recognised as being of an equivalent level, or under the supervision of an university, Directive 2005/36/EC), formally recognised as such in the respective country, and should be undertaken preferably by a free-standing unit, specifically established for that purpose. If it is undertaken by one or more departments of a parent institution, some of which also have other teaching commitments, the veterinary curriculum must be properly integrated, with effective central veterinary control. The number of veterinarians provided as educators (usually a minimum of 80 individuals working full time in the Faculty) must be high enough to ensure co-coordinated delivery of the teaching programme. Such a programme must be afforded the same recognition, status and autonomy as other professional training programmes in the institution and/or the state.

The organisational structure should make possible an objective evaluation of the quality of the training provided and the skills of the graduates. The training of the graduates should be monitored for quality at the subject and institutional levels, laying the basis for a confident system of quality assurance.

In order to ensure that the veterinary training meets the objectives and requirements of EU Directive 2005/36/EU, the organisational structure should allow input not only from educators and students but also from stakeholders (e.g. members of the profession and from the public).

Findings

2.1 The School of Veterinary Science is split across two sites:

Liverpool:
School of Veterinary Science
The University of Liverpool
Thompson Yates Building
Liverpool L69 3GB
Tel: 0151 794 8238/5660; Fax: 0151 794 4279

Leahurst:
The School of Veterinary Science
The University of Liverpool
Leahurst Campus
Chester High Road
Neston CH64 7TE
Tel: 0151 794 6002; Fax: 0151 794 6005
Head of School: Professor Susan Dawson BVMS PhD MRCVS

2.2 The School of Veterinary Science sits within the Faculty of Health and Life Sciences. The Faculty was created following consultation carried out in 2008/09 which resulted in the creation of a three Faculty academic structure. The Faculty of Health and Life Sciences resulted from the reorganisation of the Faculties of Medicine and Veterinary Science and the Schools of Biological Sciences and Psychology in September 2009. The Dean of the Faculty is Professor Ian Greer who is an executive Pro-Vice Chancellor of the University.

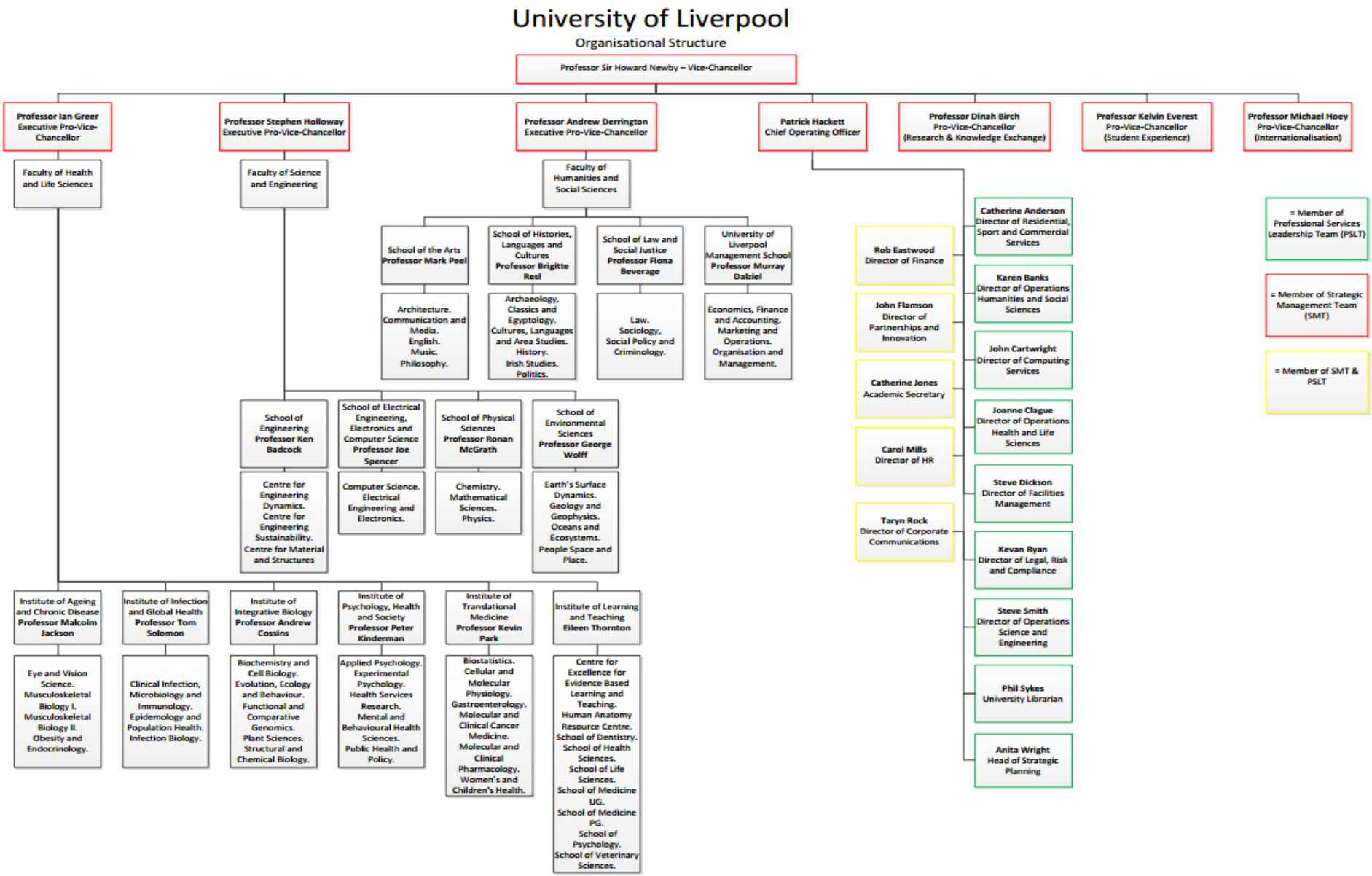


Figure 2 – University Organisation Structure

2.3 There are five research institutes within the Faculty: 1) Ageing and Chronic Disease, 2) Infection and Global Health, 3) Integrative Biology, 4) Psychology, Health and Society and 5) Translational Medicine, and these sit alongside the Institute of Learning and Teaching (ILT). The School of Veterinary Science sits within the Institute of Learning and Teaching along with five other schools; School of Medicine, School of Dentistry, School of Life Sciences, School of Health Sciences and School of Psychology.

2.4 The Institute of Learning and Teaching has a shared management structure established to coordinate and optimise investment in staffing, teaching developments and facilities. The Institute aims to research and develop best teaching practice and provide shared services. In collaboration with other Institutes within the Faculty and across the University, ILT aims to incorporate the latest research discoveries quickly into the Schools' programmes. The academic functions of the School appear to be answerable to the Faculty for academic matters.

2.5 The current head of the veterinary school was appointed in January 2011. Recruitment to this post was through internal recruitment with interview and selection as is typical within the Faculty. The post is for three years with the option of a second term if appropriate.

2.6 The Head of School has a senior management group (SMG) that has executive powers, meeting monthly with informal meetings in between. New appointments to the SMG are by invitation following agreement from the group.

2.7 There is an active alumni association with members of staff, including the Head of School, sitting on the alumni committee. Many school staff have collaborations with members of the profession through research links, committee involvement or teaching roles such as external examining.

2.8 The clinical referral and diagnostic services provide contact with many members of the profession. CPD and postgraduate provision provides for involvement of other members of the profession. Clinical services also bring a large number of members of the public onto the campuses and undergraduates interact with these clients.

2.9 Focus groups were set up to gather data on requirements for the curriculum review. Efforts were made to ensure representation from different areas and disciplines within the profession at these focus groups.

Table 1 Officers within the School of Veterinary Science

Position	Incumbent
Head of School	Professor Susan Dawson, BVMS PhD MRCVS
School Administrator	Mrs Rachael Atkins, BA (Hons) PGDip
Head of Small Animal Division	Professor Laura Blackwood, BVMS PhD MVM CertVR DipECVIM-CA (Onc) MRCVS
Head of Equine Division/School Finance Lead	Mr Peter Bowling, BSc BVSc MRCVS
Head of Livestock, Health & Welfare and Farms Division	Dr Dai Grove-White**,** BVSc MSc PhD FRCVS
Head of Veterinary Pathology	Professor Anja Kipar, Dr.med.vet.habil DiplECVP, MRCVS
Head of Veterinary Public Health	Professor Jim Scudamore, BVSc BSc DipECVPH MRCVS
School Research Lead	Professor Peter Clegg, MA VetMB PhD CertES DipEVCS MRCVS
Head of Infection Biology	Professor Jonathan Wastling, BSc PhD CBiol MIBiol
Head of Epidemiology & Population Health	Professor Matthew Baylis, BA DPhil (Oxon)
Head of Musculoskeletal Biology	Professor John Innes, BVSc PhD CertVR DSAS(Orth) MRCVS
BVSc Programme Director	Ms Carol Gray, BVMS MRCVS
Director of Admissions and Disability Support Officer	Dr Kieron Salmon, BVSc PhD MRCVS
Director of Student Experience	Ms Margaret Hannigan, BSc MSc PGCE
Director of CPD	Dr Cathy McGowan, BVSc MACVSc PhD DEIM DipECEIM MRCVS FHEA
Assessment Officer	Dr Tim Nuttall, BSc BVSc CertVD PhD CBiol MSB MRCVS
Senior Tutor	Dr Richard Barrett-Jolley, BSc (Hons) DPhil (Oxon) FHEA FBPharmacolS
Senior Tutor	Ms Avril Senior, BVSc, MRCVS
Head Vet (Equine Practice)	Mrs Angela Holland, BVSc BSc,CertAVP(EP) MRCVS
Head Vet (Farm Animal Practice)	Mrs Jo Oultram, BVSc CertCHP MRCVS
Head Vet (Farm Animal Practice)	Miss Helen Williams, BVSc CertCHP MRCVS
Head Vet (Small Animal Practice)	Mrs Katherine Linney, BVSc MRCVS
Farm Manager (Ness Heath)	Mr Nigel Jones, BSc
Farm Manager (Wood Park)	Mr John Cameron, OND HNC
Site Manager (Leahurst)	Mrs Jean Wheeler, C.Biol M.I.Biol
Site Manager (Liverpool)	Mr James Trafford, IMLS

Comments

2.10 The matrix structure adopted by the University emphasises research units and defines the research areas of emphasis. There is a risk that this could result in a reduced voice for teaching programmes in a situation where the teaching institute is but one of five in the Faculty.

2.11 The veterinary training takes place within a university and provides education that is recognised as being at university level, as required by the accreditation criteria. The University is formally recognised as such in the United Kingdom. Veterinary education is undertaken in a School that is a part of a Faculty that teaches Medicine, Dentistry, Life Sciences, Health Sciences and Psychology. The School of Veterinary Science, as well as these other schools, is a part of an Institute of Learning and Teaching that is one of five Institutes within the Faculty. Veterinary, as well as other teaching within the Faculty, is provided by members of the Institute of Learning and Teaching. The other institutes are all research institutes, although staff associated with these institutes may also be involved in delivery of teaching. Staff in the teaching institute can also be associate members of the research institutes for the purpose of conducting research.

2.12 The veterinary curriculum is controlled by a Veterinary Programme Director who reports to the Head of School. The Programme Director is responsible for developing the veterinary curriculum and is a veterinarian. The delivery of the curriculum is the responsibility of the Head of School who is also a veterinarian. The School has the same status as other schools delivering professional education of similar standing, as required by the accreditation criteria.

2.13 It was initially not clear from the self evaluation report (SER) how many full time academic staff equivalents (FTEs) were involved in teaching on the veterinary degree. Amended figures were provided during the visit, and these are reproduced in Chapter 10.

2.14 The veterinary control of teaching and learning in the BVSc appeared to be effective in developing the proposed new curriculum to be introduced in September 2013. Staff reported that planning was advanced and had progressed to the point where learning outcomes were being mapped to learning experiences throughout the proposed new programme of study. However, there appeared to be some confusion over the derivation of teaching hours across the current curriculum, as reported in Table 4.2 of the SER, and of the placement of some important parts of the veterinary curriculum within the current degree programme. Revised figures were produced for the Visitors during the visit and these are reproduced later in this report.

2.15 The structure of the faculty has resulted in many research active academic staff who teach on the veterinary programme joining one of the research institutes within the Faculty. This means that their line manager is the head of the research institute and not the head of the teaching institute or veterinary school. The Visitors heard some concerns that this could lead to difficulties if positions currently filled by veterinary-trained staff within research institutes are not replaced by similarly trained veterinary staff who would be available to contribute to teaching when veterinarians resign or retire from research institutes. There was also concern that there may be less opportunity for veterinary clinicians allocated to the School to conduct clinical research because this may not fit the focus themes of the research institutes.

2.16 The organisational structure as it is, would allow an objective evaluation of the quality of the training programme and skills of the graduates, but the School does not appear to have undertaken studies of the outcomes achieved by the veterinary teaching programme through

surveys of new graduates or their employers. Veterinary alumni reported that they had not been consulted about the revision to the veterinary curriculum and there was no evidence presented that members of the public had been consulted, although it was reported that focus groups had been involved.

2.18 The visiting team felt that the changed structure of the veterinary school within the University could be perceived as having diminished its status from previously having been a Faculty with a Dean, but this also applied to other Schools and hence the veterinary school at least had parity with others. It was too early to tell what effect the re-organisation of the Faculty structure might have on the veterinary undergraduate programme in the longer term. The School's organisation met the requirements for accreditation.

Recommendations

2.19 It is recommended that the Faculty of Learning and Teaching as well as the School of Veterinary Science develop and communicate a clear, focused and structured strategy for the Veterinary School, and support the Head of School and her senior management group to achieve this.

2.20 It is recommended that the Faculty of Learning and Teaching as well as the School of Veterinary Science closely monitors the impact of the structural changes in the University on veterinary teaching and on the ability to attract veterinary qualified academic staff to participate in the School and in the veterinary teaching programme.

Figure 2 Faculty Committee Structure for Learning & Teaching

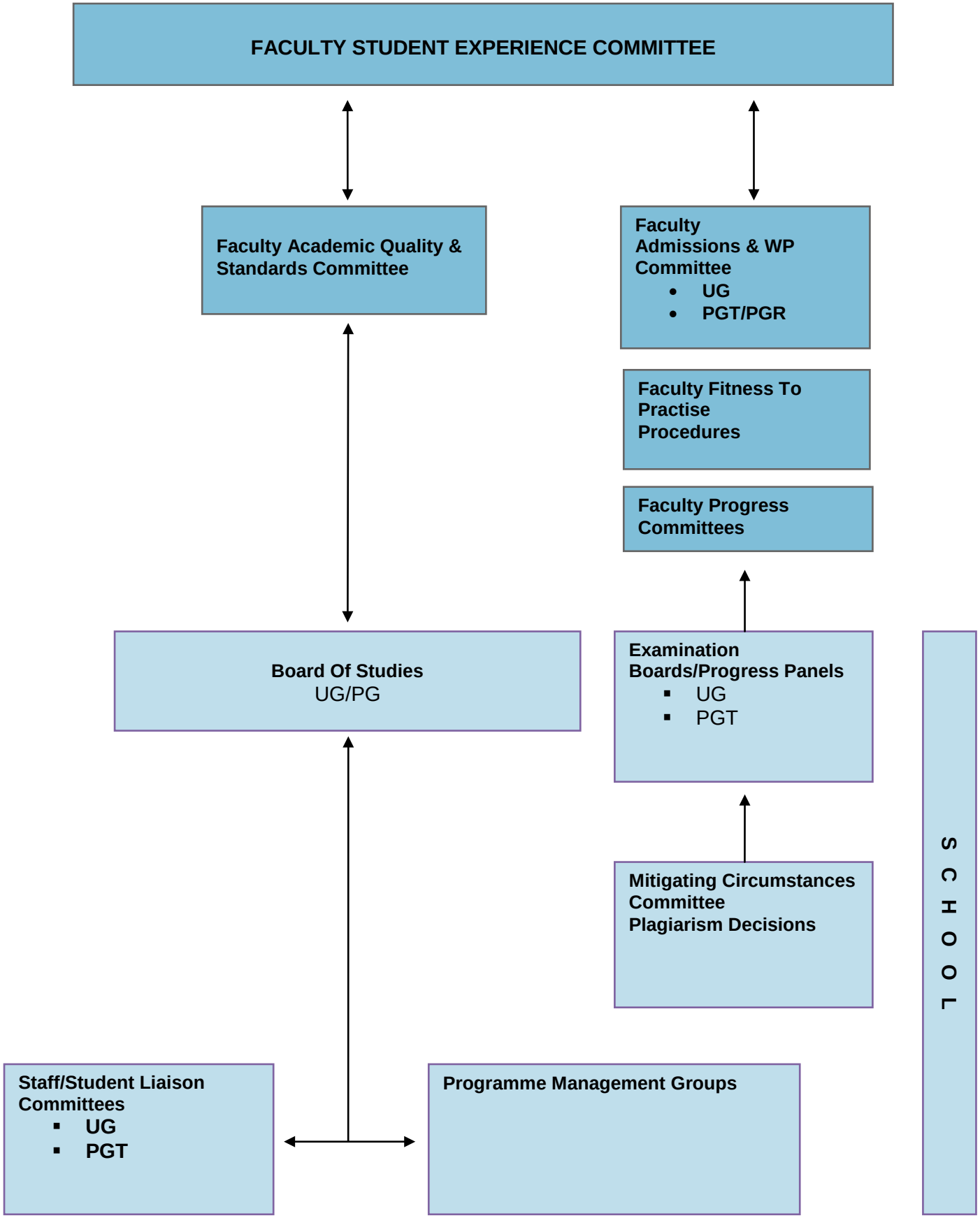
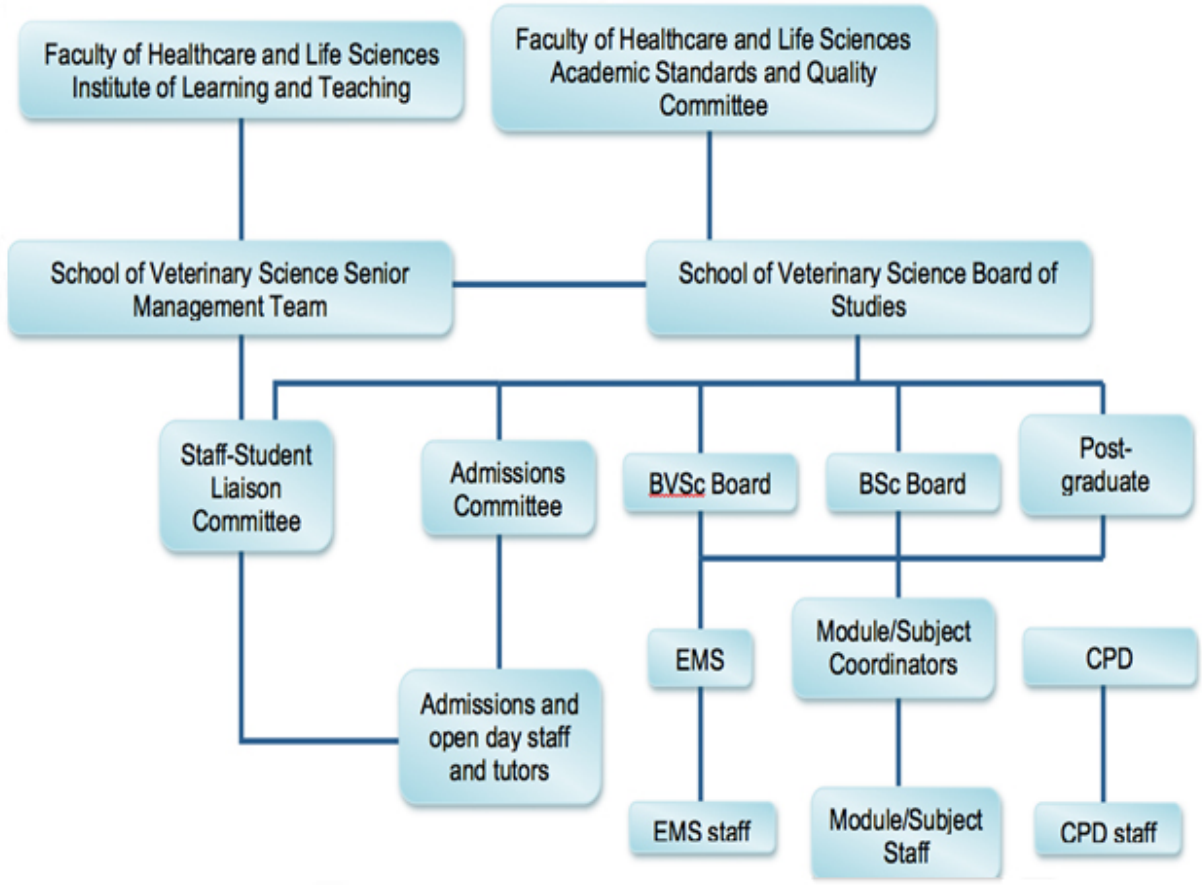


Figure 3 – School of Veterinary Science Committee Structure for Learning and Teaching



Chapter 3 - Finances

Finances must be adequate to sustain the educational programmes, to allow for adequate research and to meet societal objectives of the Faculty. Universities and national ministries must recognise that veterinary education is more expensive than training in other science-based disciplines, since it includes clinical instruction based on public services (e.g. patient care). It must also be considered that veterinary education has to take place in a research environment and that salaries should be sufficiently high so as to attract and retain highly qualified staff.

The budget must allow the Faculty to:

- Perform adequate research-based teaching
- Attract and retain highly qualified academic and support staff to reach, or exceed satisfactory teaching staff/student and teaching staff/support staff ratios
- Ensure provision and renewal of up-to-date teaching (including IT) facilities, laboratory and clinical equipment (including vehicles for the ambulatory clinics)
- Ensure teaching and clinical training in premises with adequate hygienic and safety standards
- Ensure adequate intramural clinical training by securing an adequate caseload, including emergencies, across animal species and adequate provision of stationary and ambulatory (mobile) clinical services, according to the most recent advances in veterinary medicine.

Bearing in mind the increasing demand for specialist training, funds should be made available for places for both clinical and research postgraduate students in areas in which the Faculty has expertise.

Findings

3.1 The University of Liverpool currently works on a three-year planning performance and budgetary cycle. For the School of Veterinary Science this planning is carried out by the Head of School and the School Senior Management Team. Plans are reviewed for approval at both Institute and Faculty level. A separate budget is planned for each of the research institutes with targets for research income set for the next three years aligned to their research strategy. Income flows to the area where it is generated in this model and so all the student income, both HEFCE and student fee income is allocated to the School. Within the School of Veterinary Science there are also clinical and diagnostic services providing income and these are run as business plans within the School's overall budget. Each business plan is managed separately with planning done for that area and quarterly meetings at school level to review forecasts and confirm actual figures. The forecast surplus on the budget is set as the contribution to the University. The School has flexibility to cross-subsidise between business plans if required.

3.2 Capital planning and equipment replacement (above £5,000) is part of the same planning cycle. As with income and other expenditure, capital plans are initially produced separately for each business plan and then put together to create an overall School plan which goes to the Institute and Faculty for approval.

3.3 There is an opportunity twice yearly to review the plans and alter the forecast if required. Where changes are necessary, for example where additional students have been recruited or additional research income awarded, pay and non-pay expenditure can be adjusted in line with requirements. Forecasts are also carried out twice yearly for each business plan. Where

something unexpected is required, for example the failure of a piece of equipment, then approval must be gained at Institute and Faculty level for expenditure not previously budgeted on plan.

3.4 Estates Management are responsible for upkeep and maintenance of the estate and this is budgeted for centrally. In addition, opportunities may arise where the University capital plan allocates new additional resource, for example, the £10M investment in estates for the School in 2012 has been allocated from the University capital plan. When new outside funds have been acquired for projects requiring either matched or additional funds, then the Head of School can make a case to the Institute and Faculty for further capital resource. The Leahurst Learning Centre, to be completed in May 2013, was resourced through endowment funds with an additional £900K from the Faculty to allow the full development to be carried out.

3.5 The School of Veterinary Science generates significant extra income through clinical and diagnostic services run as business plans. There is not a set proportion of turnover from each business unit which is required as a contribution by the University (see above). This allows much more flexibility for the School whereby the Head of School can make decisions to allow an individual business plan to run at a loss where there are requirements for the activity. An example would be the first-opinion small animal practice in Liverpool which has produced a deficit budget in previous years but provides an excellent part of the student experience. Subsidy from more financially successful areas within the School allows an assurance that all activities needed for student learning can be continued even in the face of a financially less successful year.

3.6 From 2012 onwards, Home/EU students pay tuition fees of £9,000 per year. Students who are on full fees pay tuition fees of £21,830. All fee income flows to the School and is planned and budgeted as previously described.

Table 2.1 Overview income (revenue) and expenditure

Year	State (government)	Academic fees and support grants	Income generated by the School Research	Business plan and endowment	TOTAL
2011/12	9,728	4,850	4,647	11,200	30,453
2010/11	9,940	4,810	4,693	10,896	30,339
2009/10	9,844	4,389	5,168	10,279	29,680

*£1,000 (Figures in table increases in thousands)

Table 2.2 Expenditure

Year	Pay	Non-pay Teaching	Research	Subtotal	TOTAL
2011/12	14,919	5,222	2,771	7,993	22,912
2010/11	14,081	4,879	2,547	7,426	21,507
2009/10	13,771	4,643	2,472	7,116	20,887

£1,000 (Figures in table increases in thousands)

Comments

3.7 The organisational changes have resulted in a complex management structure whereby the School, responsible for the delivery of the veterinary degree, draws its resources from a number of areas within the University, over which it (the School) has no direct authority. At the time of the visitation, all income associated with student income, as well as income related to specific business plans, flows direct to the School. The School will, in the fullness of time, “purchase” its teaching from research institutes that are located within the over-arching Faculty, or use human resource assigned primarily to the School. However, this relationship (or relationships) remain ill-defined and there was no resource allocation model (RAM) or service level agreement in place available for inspection by the Visitors.

3.8 The costs associated with the operation of the School are currently not allocated in proportion to teaching effort and in the self-evaluation report (SER) all salaries are assigned to the School. This does not reflect the RAM that will be in place in due course but at present it was considered that the Time Allocation Survey (TAS) was not a suitable instrument for internal management purposes. Similarly, the various business plans are variable in their inclusion of full costs, such a salaries, and whilst the plans and reports are useful for monitoring against agreed budgets, the real contribution of these plans is difficult to assess. The School is to be complimented on its adoption of a three-year rolling budget process.

3.9 With regard to overheads and corporate charges such as utilities and the like, space charging occurs in some of the business plans but the majority of non-equipment capital costs are reflected only at Faculty level. Equipment capital costs are not depreciated in the reporting that occurs at School level.

3.10 As a consequence of the stage in the evolution to a new accounting structure at which the School finds itself, combined with the complexity and (non) attribution of income and costs in the School accounts, the reported surplus in the SER does not necessarily reflect a real contribution. It is therefore impossible to comment on the sustainability (or otherwise) of the School’s activities.

3.11 However, the stated support of the Faculty for the School’s activities and the apparent sound financial footing of the University suggest that the School has financial resources to meet its needs or has the underwriting of the Faculty should a deficit situation arise.

Recommendations

3.12 The School should make available for inspection the resource allocation model and service level agreements or similar, as soon as they are agreed.

Chapter 4 - Curriculum

General aspects

Veterinary training must comprise at least five years' full-time theoretical and practical study in a University or equivalent higher education establishment. Longer veterinary basic training is a legal decision for the country.

It is imperative to acquire basic knowledge in all fields of veterinary science, particularly in clinical instruction, thus enabling veterinary surgeons to perform all their duties, as stated in Directive 2005/36/EC, Annex V. It is desirable that the students are allowed more advanced training (tracking) in one given field. This can be up to 20% if students meet the Day One Competences.

Provided that the curriculum maintains an adequate level of training, faculties can follow the Bologna Declaration by offering a Bachelor's degree prior to finishing the five-year full-time minimum undergraduate veterinary education, leading to the award of the professional title of Veterinary Surgeon (or equivalent professional title) as regulated by the Directive 2005/36/EC. Graduation after completing this veterinary education is equivalent to a Master's level and, depending on national regulations, this degree may be assigned to the Veterinary Surgeon (or equivalent professional denomination). The title of Veterinary Surgeon is the only professional title provided (Directive 2005/36/EC) after having completed these full-time studies lasting for at least five years.

Acquisition of generic competences, such as skills in written and oral communication, problem-solving and professional attitudes at all stages of the curriculum, are an important adjunct to practical and clinical skills.

The curriculum (e.g. the distribution of the theoretical and practical training among the various groups of subjects listed in Directive 2005/36/EC) must be acquired in such a manner that the educational aims are met.

Curriculum development is the responsibility of the institution as a whole, and should not be left to individual departments (see also Stage Two).

The aims of the curriculum and the learning objectives/outcomes must be clearly explained to both staff and students (see also Stage Two).

These aims must reflect the needs of the profession and of society, and mechanisms must be introduced to ensure this (see also Stage Two).

Methods must be established to monitor and, where necessary, amend the curriculum. Faculties should aim towards the quality assurance mechanisms prescribed for Stage Two.

The instruction provided must include basic clinical training across all common domestic species, e.g., companion animals (dog, cat), equine and the food-producing animals of the bovine, ovine, caprine, porcine, avian and farmed fish species. In cases where the Faculty cannot give adequate hands-on teaching in a species, arrangements should be made for students to learn this at another Faculty (freedom of learning – European Credit Transfer System principle).

The breakdown of the theoretical and practical courses between the various groups of subjects must be balanced and co-ordinated so that the students may acquire the knowledge, skills and experience mentioned in these guidelines. Practical training (particularly clinical training) requires the active participation of students under appropriate staff supervision in adequate ratios.

Extra-mural practical training may form part of a full-time veterinary course as long as it is supervised by the institution concerned and does not exceed six months of the total academic five-year training period (Directive 2005/36/EC). Extra-mural training is complementary, and can not be used to replace training by the Faculty, but can be used to supplement the basic intramural training provided by the institution.

All students must have acquired Day One Competences by the time they graduate including general academic and professional attributes and attitudes towards professional development as well as pertinent practical, generic and clinical skills.

Provisions should be made for those undergraduate students who want to gain specific experience in research.

Findings

4.1 The University of Liverpool offers three routes to the Bachelor of Veterinary Science – BVSc and admittance to the RCVS Register: the five-year D100, the six-year D101 (with an intercalated year, usually between 3rd and 4th year), and a "fast-track" four-year programme for graduate entrants with suitable prior qualifications.

4.2 The current students follow a curriculum that will run until 2017. The current curriculum has a modular structure in years 1-3. Years 4 and 5 are non-modular, with a clinical theory course at the beginning of year 4 followed by 24 weeks of clinical rotations spanning years 4 and 5. There is also a three-week elective block after final examinations where students select an area of practice for further study.

4.3 The current curriculum aims:

- to enable graduates to have the skills, knowledge and confidence necessary to develop as veterinary/animal scientists, whatever their subsequent careers
- to encourage students to be self-motivated learners, capable of capitalising on the diversity of backgrounds of their fellow students and staff, and to continue learning in their subsequent careers
- to enable graduates to be valued by their employers and make a positive contribution to society
- to impart to students during the undergraduate degree, an appreciation of ongoing research in veterinary science and the consequent need for Continuous Professional Development
- to ensure that graduates have basic clinical and other essential competences that meet the requirements of the RCVS immediately on graduation.

4.4 See Annex 1 for the list of modules in the current curriculum.

4.5 Clinical rotation weeks in years 4 and 5 are divided up as follows:

Table 3 – Rotation week titles

Equine	Farm	Small Animal	Front Line Skills
Orthopaedics 1	Herd monitoring	Cardiology/behaviour	Public health
Orthopaedics/Imaging	Lameness	Orthopaedics/neurology	Clinical pathology
Soft tissue surgery	Reproduction	Soft tissue surgery	SA imaging
Medicine	Sheep/Beef	Medicine	Equine anaesthesia
1st opinion practice	1st opinion practice	Dermatology/oncology	SA anaesthesia
Out of hours	Farm Assurance	Out of hours	1st opinion practice

4.6 A large-scale review of the current curriculum has taken place. The new curriculum is designed to strengthen integration in years 1 to 3, both horizontally and vertically, so that students can more readily assimilate and apply their knowledge in years 4 and 5. The new curriculum is based on a spiral model, with vertical and horizontal integration between themes, and this integration will be promoted by an integrated assessment strategy.

4.7 The new curriculum will be introduced for first year students from the start of the new academic year in 2013. When implemented, the two curricula will run in parallel for 5 years (2013/14 – 2017/18). The proposals for the new curriculum have been presented to the Faculty Academic Quality and Standards Committee (FAQSC) for review and approval but had not been finally confirmed by that committee at the time of the visitation.

4.8 Smaller-scale changes are made to the current curriculum on a regular basis. Proposed minor changes are presented at the BVSc Board and if approved, submitted to the School Board of Studies before submission to the relevant faculty committee for final approval and amendment to module details.

4.9 Table 4 below sets out the hours allocated to the list of subjects required by the EU Directive for the current curriculum.

4.10 The aims of the new curriculum are:

- to enable graduates to have the skills, knowledge and confidence necessary to practise, and to develop, as veterinary scientists and clinicians
- to develop independent and lifelong learning skills
- to prepare graduates who are professional, competent and aware of their responsibilities to animals, clients, employers and wider society
- to develop the skills required for research and sourcing of evidence, leading to evidence-based veterinary practice
- to ensure that graduates meet the requirements of the RCVS, EAEVE and any other appropriate regulatory bodies at the point of graduation
- to produce veterinary graduates who are effective communicators, and can work with other members of the veterinary team.

4.11 The new curriculum will be based around nine major learning outcomes, supported by an associated subset of learning outcomes and are delivered via nine themes running through all five years of the programme: professional skills, business skills, research skills, welfare ethics and law, management of disease, public health, disease processes, management of individuals, normal structure and function. The learning outcomes have been mapped to the RCVS Day One Competences.

4.12 The new timetable will be based on a maximum of 30 hours' teaching per week, which is divided up amongst the themes and includes a block of integrated teaching.

4.13 The new programme will be delivered through a mixture of learning and teaching methods including:

- Lectures (face-to-face and on-line)
- Small group seminars
- Practicals, including animal handling, dissection classes, clinical skills development and post mortems.
- Group-work: case or scenario-based learning, used to promote integration between subjects
- Self-directed learning, often in preparation for seminars

- Clinical rotations and electives
- Experiential learning, including role-play scenarios
- Research projects.

4.14 The main change in the new curriculum is the de-modularisation of both teaching and assessment. It is expected that the amount of time devoted to individual subjects will not change substantially. Years 4 and 5 will retain a similar structure to the current curriculum, but with more integration and inclusion of practical and seminar sessions. The number of rotation weeks is likely to increase from 24 to 36 in order to maintain the current group sizes of 4 – 6 students in the face of increasing student numbers.

Table 4.1 – Summary table of hours

Subject	Theoretical training			Supervised practical training			Other	Total
	Lectures - A	Seminars - B	Self-directed learning - C	Lab & desk based work - D	Non-clinical animal work - E	Clinical training - F		
Basic Sciences	386	25	1274	144	76	0	0	1905
Clinical Sciences	1027	182	421	151.5	25	1006	0	2812.5
Animal Production	68	6	368	9	10	0	0	461
Food hygiene/public health	62	35	152	51	0	0	0	300
Professional Knowledge	8	0	5	1	0	0	0	14
Research methods	4	10	134.5	1.5	0	0	0	150
Communication skills	6	0	20	8	0	0	20	54
Professional Skills	2	2	20	0	0	0	20	44
Clinical Electives	0	0	160	0	0	0	0	160
Subtotal	***1563***	***260***	***2554.5***	***366***	***111***	***1006***	***40***	***5900.5***
Extra-Mural Studies (EMS)							1520	
TOTAL incl EMS								**7420.5**

Table 4.2 : Detailed curriculum hours in EU-listed subjects taken by each student (current curriculum)

Subject	Theoretical training			Supervised practical training			Other	Total
	Lectures - A	Seminars - B	Self-directed learning - C	Lab & desk based work - D	Non-clinical animal work - E	Clinical training - F		
1. Basic subjects	Basic subjects are covered by programme entry requirements							
2.Basic sciences								
a) Anatomy (incl. histology and embryology	72	9	180		76			337
b) Physiology	121		149	43				313
c) Biochemistry, cellular and molecular biology	63		221	41				325
d) Genetics (including molecular genetics)	36		164					200
e) Pharmacology and pharmacy	20	2	203					225
f) Toxicology (including environmental pollution)	4		10	3				17
g) Microbiology (including virology, bacteriology and mycology)	46	5	202	47				300
h) Immunology	10		40					50
i) Epidemiology (including scientific and technical information and documentation methods)	12	7	100	10				129
j) Professional ethics	2	2	5			**		9
2 - Total number of hours	**386**	**25**	**1274**	**144**	**76**			**1905**
3. Clinical sciences								
a) Obstetrics	12					40 *		52
b) Pathology (including pathological anatomy)	66		141	53		40		300
c) Parasitology	45	27	119	34				225
d) Clinical medicine and surgery (including anaesthetics)	735	54	15	15.5		840		1659.5
e) Clinical lectures on various domestic animals, poultry and other animal species	88.5	10	4	3				105.5
f) Field veterinary medicine (ambulatory clinics)	4					***(120)*** **		4

g) Preventive medicine	2	2				***(80)*** **		4
h) Diagnostic imaging (including radiology)	9			3		40		52
i) Reproduction and reproductive disorders	30	50	114	31	25			250
j) Veterinary state medicine and public health	2		2			40		44
k) Veterinary legislation and forensic medicine	4	7						11
l) Therapeutics	10.5	2		3				15.5
m) Propaedeutics (including laboratory diagnostic methods)	19	30	26	9		6		90
3 - Total number of hours	**1027**	**182**	**421**	**151.5**	**25**	**1006**	**0**	**2812.5**
4. Animal Production								
a) Animal production	16	6	33					55
b) Animal nutrition	10		50					60
c) Agronomy	2		10					12
d) Rural economics	2		10					12
e) Animal husbandry	20		224	6	10			260
f) Veterinary hygiene	2		10					12
g) Animal ethology and protection	16		31	3				50
4 - Total number of hours	**68**	**6**	**368**	**9**	**10**	**0**	**0**	**461**
5. Food hygiene/ Public Health								
a) Inspection; and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	48		80	6				134
b) Food hygiene and technology	4	35	28	10				77
c) Food science including legislation	10		44					54
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)				35		***(16)*** **		35
5 - Total number of hours	**62**	**35**	**152**	**51**	**0**	**0**	**0**	**300**
6. Professional knowledge								
a) Practice management	6							6
b) Veterinary certification and report writing	2			1		***(24)*** **		3
c) Career planning and opportunities			5					5
6 - Total number of hours	**8**	**0**	**5**	**1**	**0**	**0**	**0**	**14**

Subject		Theoretical training			Supervised practical training			Other	Total
		Lectures A	Seminars B	Self directed learning C	Laboratory and desk based work D	Non-clinical animal work E	Clinical work F		
7	**Research methods**	4	10	134.5	1.5				**150**
8	**Communication skills**	6		20	8			20	**54**
9	**Professional skills**	2	2	20				20	**44**
10	**Clinical elective**			160					**160**

* Includes clinical reproduction

** Included in clinical medicine and surgery

☐ Ambulatory clinics (see table 3 above, “1st opinion practice” rotations)

Figures in brackets are the hours contributed by that subject to the overall clinical practical training, and are included in the total for 3 (e), rather than the totals for specific subjects.

Following discussions with staff to clarify data provided in the original self evaluation report, the above table was provided by the School during the visit. The number of hours allocated for self-directed learning has been increased significantly in the above table compared to those provided in the SER. The EAEVE ratios presented in Annex 2 have been calculated using the above amended figures.

Comments

4.15 The Visitors were unable to comment in detail on the new curriculum as this had not yet been implemented and was still subject to approval by the faculty committee.

4.16 The coverage of the current curriculum was considered to be satisfactory and to meet the criteria for approval.

4.17 The implementation and assessment of the new curriculum will be a demanding process requiring monitoring and the need for adjustment and change. The five-year period with overlapping curricula will be demanding on staff. With the focus of the School's staff on the introduction of the "new" curriculum it is a risk that improvements and necessary changes to the "old" curriculum may not be prioritised during the period of overlapping curricula.

4.18 The Visitors heard conflicting reports from students concerning their awareness of the required learning outcomes. Some reported that they were not made aware of learning outcomes for modules and did not fully know what was expected of them. They also did not have a clear understanding about their progress towards achieving the learning outcomes for their modules. Teaching staff and academic administrators however gave assurance that every module was required to have learning outcomes and these were available as a part of standard module descriptions available on the University of Liverpool intranet.

4.19 The Visitors noted that many module courses did not include formative assessment but only final examinations on each module. In some cases, lecturers provided some formative assessment information and this was much appreciated by students. The lack of formative assessment was also observed to create difficulties for students who had entered the programme by alternative routes amd who were less accustomed to summative final examinations.

Suggestions

4.20 When the new curriculum is introduced, its implementation, planning and resource use should be reviewed after three years.

4.21 Greater efforts should be made to ensure that students are aware of learning outcomes for the modules that they undertake and that they receive effective instruction in how to retrieve information on programme and module learning outcomes from the University's intranet.

Recommendation

4.22 It is recommended that the Faculty of Learning and Teaching as well as the School of Veterinary Science should work actively to develop and improve the "old" curriculum during the overlap period with the introduction of the new curriculum.

4.23 Formative assessment and feedback to students must be provided for all modules in the current curriculum as well as being built into the new curriculum, so that students are able to evaluate their progress toward achieving the required learning outcomes for every teaching module and clinic.

Curriculum — basic subjects and sciences

The instruction in basic subjects, (physics, chemistry, animal biology, plant biology, biomathematics) may be given as part of, or in association with, other disciplines of the veterinary course. They could also advantageously be taken prior to entry to the veterinary course. These subjects should provide a solid background in chemical, physical and biological sciences, with the objective of preparing students for the subjects to be taught later in the veterinary curriculum.

Instruction in basic sciences must provide students with an understanding of the fundamental biological principles and mechanisms underlying animal health, disease and therapy, from the molecular and cellular level to the level of the organ, the whole animal and animal populations. This includes an understanding of the biological basis of normal structure and function, the mechanisms governing homeostasis, the physiopathology of organ systems and the biological and pharmacological evidence-based mechanisms, by which disordered states may be returned to normal.

The teaching must also cover the biology of agents that cause and transmit diseases from animal to animal and from animal to man, the transmission mechanisms and the mechanisms by which animals defend themselves against infectious agents and how these mechanisms can be induced.

The basic sciences must include:
Anatomy, Physiology, Biochemistry, Genetics, Pharmacology & Pharmacy, Toxicology (including environmental pollution), Microbiology (including virology, bacteriology and mycology), Immunology, Epidemiology (including scientific and technical information and documentation methods), Professional ethics.

Findings

4.24 The EU-listed “basic subjects” are not covered in the degree programme; in line with all other veterinary schools in the UK, such subjects are deemed to have been covered prior to entry to the degree course with basic sciences set as required entry level qualifications.

4.25 The “basic sciences” are studied in years 1-3 (see Table 4.2 above).

4.26 Years 1-3 are currently run on a modular basis. Most modules are worth 15 credits, and an average of four modules (60 credits) are studied each semester. There are two semesters per year and examinations are held at the end of each semester. Examinations comprise written and, often, practical examinations in each modular subject.

4.27 In terms of the balance between theoretical and practical training, there is a bias towards didactic (theoretical) teachings in years 1-3.

4.28 During the visitation, it became clear that the information provided in the SER on teaching hours per EU-listed subjects was not correct and a revised version was produced for the Visitors (reproduced above as Table 4). Physiology is taught in eight modules in years 1 and 2 (two modules in each of the first four semesters). During the visitation, discussions on the curriculum clarified that the 43 hours of laboratory and desk based work in physiology were not conventional physiology practicals.

4.29 The tour of the laboratories used for the teaching of histology revealed that there were not enough sets of histological slides for each student to have their own set in a practical class. The visitation team was informed that two laboratories are used for teaching the current numbers of students. The lecturer is in one laboratory and images transferred to the second.

4.30 As far as paraclinical sciences are concerned, the current curricular offering appears to meet the needs of the students and covers the subjects as defined by the standards. The proposed changes, whilst not yet fully agreed, appear to be sensible and will offer spiral exposure of the students to the necessary subjects. The facilities available for this component of the curriculum have recently been refurbished and expanded to facilitate delivery.

Comments

4.31 When the new curriculum is introduced, it will be important for the School to monitor the effects of the eventual mixture of learning and teaching methods on the balance of theoretical and practical teaching.

4.32 There appeared to be no traditional laboratory sessions in physiology, nor any place to conduct physiology laboratories. The teaching of physiology appears to be limited to lectures in form and function. The 43 hours shown in Table 4 allocated to “Laboratory and desk-based work” is therefore all desk-based work.

4.33 It is probable that the new curriculum, whilst not extending contact hours, will require additional resource in this part of the curriculum.

Suggestions

4.34 Student numbers should be matched to staff and teaching resources and facilities.

4.35 The use of seminars in the basic sciences should be increased.

4.36 Introduce laboratory or simulation sessions in physiology rather than relying only on desk-based work to provide instruction in this field.

Recommendation

4.37 Final versions of the new curriculum should be submitted for inspection with revisit within three years.

Curriculum — clinical sciences

The course of instruction in the basic sciences (pre- and para-clinical subjects) should have laid the necessary groundwork on which to build clinical knowledge and skills.

Propaedeutic training, as listed in the Annex V.4 of Directive2005/36/EC, must provide the skills required to examine the patient or analyse the case, collect the clinical and laboratory data as the fundamental basis for a diagnostic and therapeutic plan for the case.

Intramural clinical training must be provided so all students receive a common clinical grounding, encompassing all species and disciplines, in accordance with the Directive 2005/36/EC, Annex V, and adequately enable veterinary surgeons to perform basic clinical duties in all species, if required (see the list of essential competences required at graduation, the so-called “day-one skills” in **Annex 4**. The time allotted for training in clinical sciences should account for at least 40% of the entire curriculum. This does not preclude the acquisition of additional knowledge in selected areas for which there is less demand as considered in the Directive 2005/36/EC.

Extramural clinical training and exposure to patient-driven clinical services are, albeit encouraged, only to be considered supplementary to the intramural clinical instruction provided by the Faculty, with equal consideration to teaching hospital (stationary) clinics or ambulatory (mobile) clinical services, which should remain the core of the intramural clinical instruction.

The clinical sciences must include:

- Obstetrics
- Pathology (including pathological anatomy)
- Parasitology
- Clinical medicine and surgery (including anaesthetics)
- Clinical lectures on the various domestic animals, poultry and other animal species
- Preventive medicine
- Radiology, (diagnostic imaging)
- Reproduction and reproduction disorders
- Veterinary state medicine and public health
- Veterinary legislation and forensic medicine
- Therapeutics
- Propaedeutics

The above subjects are general subjects. Faculties should ensure that students are exposed to all major areas of clinical specialisation.

Findings

4.44 The School aims for an even distribution of time allocation between the three species areas (equine, farm animal and small animal) in years 4 and 5. However, the inclusion of a fourth rotation group that consists of Small Animal (SA) and equine anaesthesia, SA imaging, SA first opinion, clinical pathology and public health, tends to skew the hours slightly in favour of small animal clinical studies in the current timetable.

4.45 Clinical rotations are currently run over 24 weeks, with 12 weeks undertaken in year 4, and 12 weeks in year 5. Each week is assessed as a stand-alone clinical training assessment, with its own discrete learning outcomes. Assessment is carried out by all staff involved in supervising the students. Students must pass all 24 rotation weeks. Attendance is full-time and monitored. Group sizes for rotations are four to six students. An anticipated increase in the number of students (currently 150 in final year) will lead to an increase in the number of rotations from 24 to 36 weeks.

4.46 Table 3 above lists the current rotation week titles.

4.47 Ophthalmic teaching is scheduled to take place in 2013 at an external venue distant from the University Campus during the clinical rotations.

4.48 The stated aim of the School is that the BVSc curriculum prepares the veterinary graduates for practice in a variety of areas. As the majority of them will enter first-opinion practice (at least initially), their teaching and assessment is focused on the achievement of the RCVS Day One Competences expected of a new veterinary graduate.

Comments

Clinical sciences

4.49 Instruction in clinical sciences appears to be adequate.

Companion animal clinical studies

4.50 Instruction in companion animal clinical sciences appears to be adequate, aided by the caseload of the veterinary teaching hospital and the clinic.

4.51 The new curriculum has been designed to cope with an increased number of students (up to 150) but rotations and electives will have to take place during the vacations if the current stated aim of maintaining the optimal group size of between four and six students is to be maintained. (See also comments on facilities later in this report.)

Production animal clinical studies

4.52 The curriculum for production animal clinical studies appears to be acceptable with good coverage of all the required aspects, aided by the provision of clinical instruction using the University's farms, supplemented by clinical casework and referrals.

Suggestions

None

Curriculum — animal production

Animal Production is the broad term used to describe the entire discipline of breeding, rearing and disposal of food-producing animals and their products by sale, slaughter for food or as waste. Tuition must cover the major food-producing species (cattle, sheep and/or goat, pigs, poultry, rabbits, and equine) and one example of a farmed fish species. Knowledge of animal production in its broad sense is essential for the veterinarian in order that changes in normal behaviour and management can be detected, animals can be handled safely, treatment can be given in an appropriate manner and appropriate recommendations can be made for prophylactics and care.

The training must be oriented towards the application of prophylactics and clinical treatment on individual and herd basis, preventive veterinary medicine (e.g. herd health) and management of epidemic diseases, reproductive management, housing of animals and feeding regimes. The training provided should allow veterinarians to derive proper data for food chain information and possible risks to human health.

Training must familiarise students with the normal methods for the disposal or recycling of animal waste and the common requirements for ethical, environmentally-sound and hygienic disposal of the bodies of companion animals and the carcasses of food-producing animals.

Training must provide adequate knowledge on animal welfare issues, covering rearing and holding on-farm until slaughter.

Knowledge of the economics of animal rearing enterprises and their place in the rural economy is required to make informed decisions about disease control and euthanasia.

The importance of genetics in animal breeding and trade as well as for disease resistance should be understood.

Theoretical and practical training must cover the broad requirements of the individual member states. Theoretical instruction should be accompanied by practicals which provide the confidence to handle major domestic animal species safely and the ability to carry out basic tasks in animal management, breeding and rearing.

The animal production subjects must include:

- Animal production (the domestic food-producing animal species in society and the economy)
- Animal nutrition (nutrition and feeding of food-producing species)
- Agronomy (cropping, grazing and land use in relation to food-producing animal species)
- Rural economics (animals as a business and their importance in the countryside)
- Animal husbandry (housing, management and reproductive management systems, including artificial reproduction techniques, e.g. artificial insemination, multiple ovulation and embryo transfer).
- Veterinary hygiene (farm layout, drainage, cleaning, disinfection and bio-security)
- Animal ethology and protection (behaviour, social organisation in animal populations and common welfare issues, including behavioural disorders and their remediation)

Relevant and appropriate consideration of the principles above should also be applied to the major non-food - animals like the dog and cat.

Findings

4.53 The curriculum for animal production and husbandry is spread across a number of modules in the early years (see Annex 1), and students receive comprehensive training in animal handling and husbandry through the University-owned Ness Heath Farm. First year students visit the farm for sheep and pig handling courses, whilst 4th year students are involved in routine husbandry tasks with cattle and sheep. This is also supplemented by pre-clinical EMS placements.

Comments

4.54 The instruction in animal production appears satisfactory.

Suggestions

None

Curriculum — food hygiene and technology and veterinary public health

The training must ensure that each student understands the fundamentals of veterinary public health, food science and modern food technology, the scientific basis of the relationship between food and human health, and the factors underlying the quality of hygiene (of food and the environment).

Directive 2005/36/EC, Annex V.4, 5.4.1, requires therefore adequate knowledge of the hygiene and technology involved in the production, manufacture and putting into production of animal foodstuffs or foodstuffs of animal origin. It further requires adequate knowledge of the laws, regulations and administrative provisions relating to the production of such foodstuffs. Veterinary public health/Food hygiene education for veterinarians must therefore ensure that, on graduation, they can be trained by the Competent Authority (CA) to carry out the audits described in the appropriate food hygiene regulations.

Study programmes should therefore build on a sound knowledge in the field of veterinary public health/food hygiene so that students:

- know how to carry out ante-mortem inspection on farm or in the abattoir and assess the welfare of the animals concerned
- be familiar with veterinary public health and the respective legal regulations.
- understand post-mortem inspection and possess basic practical skills within the food production business and inspection requirements
- understand the importance of risk-based monitoring of the processes (HACCP concept). These tasks require a sound knowledge of the pathology, microbiology, parasitology, pharmacology and toxicology of food animals, of epidemiology and of the legal requirements, allowing them to ensure public health and report back along the food chain to the farmer and to the Competent Authority
- interpret the information returned by the Food Business Operator to the farm so as to benefit production, animal welfare and public health
- acquire an acceptable knowledge of the principles of Food Hygiene Legislation at EU-level and in the individual state

The veterinary food hygiene/public health subjects must include:

- Inspection and control of animal foodstuffs or foodstuffs of animal origin and of the respective feed-stuff production units
- Food hygiene and technology
- Food science including legislation
- Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)

The course of instruction must cover subjects necessary to prepare the graduate to perform effectively not only in the traditional veterinary practice, but also in other common professional roles.
Undergraduates must receive broad information on the different opportunities of post-graduate training and specialisation.

Findings

4.55 Coverage of food hygiene/public health (including basic studies on food production and meat quality) is integrated within the veterinary science curriculum. The modules and subjects are taught in years 1 and 2 with four basic lectures integrated with anatomy teaching, leading to a risk-based approach to food safety in year 3 covered in two modules, and in year 4 within a one-week rotation. (See Annex 1 for list of modules)

4.56 The curriculum in year 3 covers epidemiology of human and animal diseases, legislation controlling food production, and environmental protection and principles of risk analysis applied to the food chain. The basic concept of food hygiene, common lesions and problems found in the abattoir, application of epidemiology and risk analyses to problem solving in animal and human diseases is covered in a module in the second semester of year 3.

4.57 All students complete a one-week rotation in Public Health. This rotation includes two visits to abattoirs, one to a chicken abattoir and one to a lamb abattoir. There are four to six students per group. Visits last from two to three hours on-site and are led by one of the VPH lecturers and supported by local staff (OV and/or plant manager). The visits cover all the aspects of the plant operation and inspection processes. Meat hygiene is also taught in-house in practical classes with specimens collected from local abattoirs.

4.58 Students also undertake two weeks of related extra-mural studies (EMS): one week in a laboratory (that may include a VPH component), and one week in a “farm to fork” placement which is currently more likely to be a slaughterhouse (80%); students can also spend time in a food processing plant.

4.59 The academic teaching staff allocated to the food hygiene/public health curriculum) include a part- time Professor (0.2FTE) and 3.5 FTE lecturers, all of whom are veterinarians. The subject is also supported by staff in other departments such as Epidemiology or Livestock Health, Welfare and Farms, but in this case with no defined time timetabled for food hygiene/public health. Support staff for the subject are shared with Public Health and Veterinary Pathology.

Comments

4.60 The Visitors noted that since the last full visitation in 2003 and the revisit in 2006, the curriculum for VPH has been remodelled and teaching has been integrated to cover the fundamentals of veterinary public health, food science and modern food technology, the scientific basis of the relationship between food and human health, and the factors underlying the quality of hygiene of food and the environment.

4.61 The teachers in this area are to be commended for their enthusiasm, for raising the profile of these topics within the curriculum and for having established good working relationships with local processing plants allowing valuable learning experience on commercial sites.

Suggestions

None

Curriculum — professional knowledge

Professional knowledge subjects must include:

- Practice management
- Veterinary certification and report writing
- Career planning and opportunities

Findings

4.62 Professional and communication skills training is covered by a module which spreads over all five years of the course. It covers professional ethics, personal learning techniques, clinical communication skills including dealing with difficult situations.

Comments

4.63 The Visitors felt that there was scope for significant improvement here. Teaching of practice management appeared to be limited and was largely expected to be obtained during EMS. Students complete a small project on veterinary practice management, but this did not appear to address practice financial management or accounts. The new curriculum is expected to contain more on this aspect of the course as well as on career planning and opportunities, but the Visitors were not able to assess this. In the meantime, before the new curriculum rolls through, the Visitors felt that more emphasis should be placed on practice management teaching.

4.64 The coverage of communication skills in the curriculum is thorough. Liverpool has been the host and key driver of the National Unit for the Advancement of Veterinary Communication Skills (NUVACS) since 2002, pioneering the use of trained actors in the delivery of scenario-based training.

Recommendations

4.65 The School should strengthen the coverage of practice management, including financial issues, in both the current and the planned new curriculum.

Chapter 5 – Teaching, quality and evaluation

The teaching of basic sciences

One of the major objectives is the acquisition of problem-solving skills. To this end, instruction must cover the methods of acquiring, documenting and analysing scientific and technical data.

Practical training must serve to familiarise students with subjects studied in theoretical courses and to give them some insight into how scientific knowledge might be acquired. Practical training does not mean simply observing the teacher during demonstrations. Acquisition of generic problem-solving skills is required.

Findings

5.1 Staff from the School and from the five research institutes contribute to teaching in the basic sciences. Teaching is co-ordinated by a Programme Director and Module Coordinators and Subject Coordinators. The curriculum is delivered by pre-clinical and clinical specialists, academic staff engaged in research and others with a stronger teaching bias.

5.2 The School is committed to encouraging students to become independent learners who can take responsibility for their own education. The School has used external funding to develop a contextual web-based support resource which includes video and audio content which helps students develop their learning skills. The content can be expanded to meet priorities and needs in both the old and new curricula.

5.3 In addition to theoretical lectures and independent web-based learning, other teaching methods used include seminars, demonstrations, practical laboratory work, dissection, animal handling sessions and self-directed learning sessions.

5.4 Problem-based learning (PBL) was introduced in the integrated Reproduction unit in Animal Husbandry and Veterinary Biology in Year 2 in the spring of 2007, and is now established in a number of modules.

5.5 Digital Interactive Veterinary Applications (DIVA) is an e-learning initiative, developed by a teaching clinician and a specialist in veterinary anatomy to bring clinical relevance to preclinical teaching. A series of clinical cases are introduced to the students, via VITAL – a Virtual Learning Environment — at the onset of the module and the students are expected to work on them independently throughout the course. Towards the end of the module a discussion of all the cases takes place in an interactive session, followed up by relevant cadaver surgery in the dissection room. The outcome is that students see the clinical relevance, revise their anatomy and begin to get an appreciation of surgical techniques.

5.6 The School makes use of the University's IT provision in communicating essential information such as timetabling, examination results and policies and protocols to students and staff. The on-line tools include VOCAL, SPIDER, TULIP and VITAL. It is unusual for students to be provided with paper hand-outs. Textbooks are still recommended for some modules.

Comments

5.7 The School has adopted web-based platforms in some of its courses and uses IT systems for communication with students and staff. The ability of students to gather information from diverse sources is an important skill for lifelong learning.

5.8 The current curriculum has a bias towards theoretical lectures in the pre-clinical years 1-3. The curriculum review is targeted at shifting the curriculum from a largely didactic approach to a more themed clinically integrated science programme. The use of practical training and the “hands-on” elements (such as laboratory and dissection work) in learning are to be encouraged in the new curriculum.

Suggestions

5.9 There should be continued support for and development of web-based and other IT platforms to support teaching and learning, particularly given the split site structure of the School.

The teaching of clinical sciences

Clinical instruction must take place in groups that are small enough to ensure hands-on experience for all.

Students' problem solving and clinical skills should be developed through their full involvement in case management under suitable supervision. The mere observation of others practising veterinary medicine and surgery is not acceptable. The instruction provided must include basic clinical training across the common domestic species. Effective monitoring systems are to be provided in cases where the Faculty cannot give hands-on teaching in a species and the student must learn this at another institution.

Time-tabled lectures should be excluded from a substantial proportion of the clinical course as they may clash with students' case management activities.

Those responsible for theoretical clinical training must also be involved in the practical side dealt with in the institution's clinics.

The advancement of knowledge is a task involving all members of the profession. Therefore, interaction between students and clinical researchers working in the clinical field should be arranged in order to stimulate students' interest in research.

Findings

5.10 Clinical teaching takes place in years 4 and 5, through clinical rotations with groups of between 4 and 6 students. Although student numbers have increased over the years, the School has maintained the small group size and will continue to do so when the new curriculum is introduced.

5.11 When the new curriculum is introduced, clinical material will be introduced into years 1 and 2 in order to increase the integration of learning between the basic and clinical sciences.

5.12 A new clinical skills centre has been opened in the new veterinary teaching suite in Liverpool. Designed as a "self-teach" drop-in centre along with some instructed practical classes and online assessment of progress, students are able to practise their Day One skills from an early stage in the course to prepare for their EMS and clinical rotations. Students are also able to watch particular techniques online and practice in the practical lab or cadaver classes. "Peer-assisted learning" has recently been introduced to second and third years and seems to be well-received by students.

5.13 When on clinical rotations, students follow cases through and are taught by residents and clinical teachers in the University's hospitals and first opinion practice.

Comments

5.14 From a review of the materials presented and the examination scripts examined, the clinical teaching and level of attainment of students appear to be at the level that would be expected.

Suggestions

5.15 None

The teaching of animal production

Those teaching the theory of animal production subjects should also be involved in practical training with the major domestic animal species. Teaching should reflect the species balance and management systems of the country. For food producing animas, practical work should be farm- case-based as much as possible.

Practical extra-mural courses should be encouraged as long as adequate supervision is in force.

Findings

5.16 Teaching of animal production at Liverpool is covered in the pre-clinical years in a number of modules covering all the main domestic species including companion animals, horses, cattle, pigs, poultry, and sheep. Teaching continues in the clinical years, covering production animal clinical studies through the University's two farms and the farm animal practice.

Comments

5.17 The teaching of animal production is acceptable, supported by the provision of clinical instruction using the University's farms, clinical casework and referrals. The availability of production animal species on the University's farms allows basic procedures to be taught for the common domestic species and animal industries of the UK.

Suggestions

None

The teaching of food hygiene/public health

Practical training must familiarise students with the concepts of Food Business audit especially with regard to food of animal origin at various stages in the food chain, particularly in slaughterhouses. Students should develop Day One Competences in the interpretation of food chain information, ante-mortem inspection and post-mortem inspection and be capable of being trained as official veterinarians by the Competent Authority.

The training must take place in groups that are small enough to ensure that all students are able to gain hands-on experience.

It should also give students the opportunity to monitor units involved in the production, processing, distribution and consumption of foodstuffs.

Extra-mural instruction in the training in veterinary public health and food hygiene may be used so long as it is properly supervised.

Findings

5.18 The teaching of food hygiene and public health is covered by traditional lectures, self directed learning, laboratory and desk based work, totalling around 300 hours of study that can be specifically identified for this topic.

5.19 Practical training is carried out in groups of four to six students on supervised field trips to abattoirs (see Chapter 5, Curriculum), and laboratory work is undertaken in groups of 25-30 students (subdivided into groups of eight to ten students).

5.20 As well as the time identified in Table 4 specifically for food hygiene and public health, other areas of the curriculum such as epidemiology and farm animal clinical studies also contribute to the teaching of food hygiene and public health.

Comments

5.21 Since the last RCVS visitation in 2003 and the revisit in 2006, the teaching of food hygiene and public health has been remodelled. Teaching has been integrated with other areas of the curriculum in order to ensure that all students cover the fundamentals of veterinary public health, food science and modern food technology, and understand the scientific basis of the relationship between food and human health, and the factors underlying the quality of hygiene (of food and the environment).

5.22 Public health is covered in farm rotations (week 7 devoted to public health) and referred to in several other subjects such as infectious diseases and parasitology.

5.23 The Visitors are of the view that the required knowledge of the basis of hygiene and technology (production, manufacture and production of animal foodstuffs) is achieved within the programme. The programme is structured so as to provide students with a sound knowledge of veterinary public health/food hygiene and the laws, regulations and administrative provisions relating to the production of such foodstuffs, sufficient to enable students to be trained subsequently as official veterinarians.

5.24 Group visits to abattoirs provide students with the knowledge of how to carry out ante-mortem inspection on farm or in the abattoir and assess the welfare of the animals, as well as to acquire an understanding of post-mortem inspection and the necessary basic practical skills.

5.25 Seminars and self-directed learning provide students with the understanding of the importance of risk-based monitoring (HACCP), with a sound knowledge of pathology, microbiology, parasitology, pharmacology and toxicology of food animals, of epidemiology and of legal requirements, ensuring public health and allowing for report back along the food chain to the farmer and to the Competent Authority.

Suggestions

None

Essential competences at graduation (Day One Skills)

Students must be provided with clear learning objectives for each of the essential competences at graduation (Day One Skills).

Findings

5.26 Learning objectives are defined for each module in the curriculum and these are available to students via the University's intranet. All the learning objectives in the new curriculum have been mapped to the RCVS essential Day One Competences.

Comments

5.27 The current curriculum focuses on the Day One Competences, although not all students appeared to be fully aware of the detailed learning objectives of the various course components.

Suggestions

5.28 The School should ensure that the learning objectives for modules and the various course components are readily accessible to students, consistently presented, and their relationship to essential Day One Competences, where appropriate, is clear for students to see.

The teaching and learning environment

The academic environment must be conducive to learning of the students and the didactic and pedagogic development of the teaching staff.

Findings

5.29 The School facilitates attendance by staff at courses within the University and elsewhere for development of teaching skills. All new staff must complete a teaching certificate. All veterinary qualified staff must undertake CPD and those wishing to undertake Masters and PhD programmes qualify for fee remission and are supported through the provision of time for research, attendance at workshops etc. The School collaborates with other veterinary schools on staff development projects such as the Veterinary Education Symposium and the National Unit for Veterinary Assessment of Communication Skills (NUVACS).

5.30 There is an annual Professional Development Review for staff. Career progression routes for staff primarily involved in teaching are being developed and criteria for promotion include teaching quality, leadership and innovation. Excellence in teaching is recognised through university awards, and a number of veterinary school staff have been successful in winning awards for their teaching in recent years.

5.31 A system for peer-review of teaching has recently been strengthened and peer review will take place at least once every two years for all teaching staff.

Comments

5.32 Although funding ceased for the awards in 2009 (the Sir Alistair Pilkington Awards [SAPTA] for Excellence in Teaching), efforts are being made to reinstate awards from 2013. The systems for staff development are acceptable.

Suggestions

None

The monitoring and assessment of students

Student performance must be assessed regularly.

Written, project and practical work, generic competences such as professional attitudes, communication skills, problem-solving abilities must all be evaluated with equal emphasis to practical and clinical skills. Evidence must be produced that students meet day one competences.

Evaluation methods must be known and understood by the students.

Whenever possible, the use of external examiners/observers should be made.

Results of assessment must be documented properly.

Findings

5.33 The University in its examination policy is committed to ensuring that all methods of assessment are fair and effective in measuring student attainment of stated learning outcomes and that policies and practices in monitoring the validity, equity and reliability of assessment are also effective.

5.34 Examinations vary in format – ranging from essay questions, short-answer questions and multiple choice questions (MCQs) to practical and oral examinations. The School has laid down quantitative guidelines for its examination formats.

5.35 There are two formal examination periods in an academic year (January and May/June) with re-sit examinations in late August.

5.36 The role of the external examiners is to monitor standards to ensure that assessments are fair, rigorous, appropriate and consistent. External examiners are not primarily concerned with the assessment of individual students, but may be asked to arbitrate on problem cases. They do not normally participate in the assessments, unless they assess all the students within a cohort. External examiners are appointed annually for a maximum four years. A new system of appointing external examiners at different levels is being introduced in 2012-13.

5.37 The pass mark for all BVSc written examinations and assessments (including graduates on the accelerated programme) is 50%. Students failing an examination have a re-sit opportunity in late August. Resit examinations are capped at 50% (BVSc) no matter what the actual mark achieved is (unless there were mitigating circumstances and students have been permitted to resit the examination as a ‘first attempt’).

5.38 BVSc students may vire (i.e. progress to the next year of studies with failed credit) up to 15 credits in the range 45-49%. Graduate entry (fast-track) BVSc students may vire up to 30 credits in the range 45-49%, but only in the initial “fast track” year – thereafter it reverts to up to 15 credits. Fourth and final-year BVSc students are not permitted to vire any marks. With the introduction of the new curriculum, the vire system will disappear and each set of exams must be passed to allow progression to the next year.

5.39 During the visitation, students in the pre-clinical years expressed concern at the lack of formative assessment. They commented that they had little information on their state of preparedness when they arrived at their final module examinations.

Comments

5.40 It appears that formative assessment is not consistently used, particularly in the pre-clinical years.

5.41 When reviewing examination question papers, there appeared to be significant repetition of exam questions between years.

5.42 There appeared to be good use of External Examiners reports, with changes being effected in line with requests and recommendations from the externals.

Suggestions

5.43 The School should ensure that a significant proportion of examination questions are refreshed each year.

Recommendations

5.44 (As per Chapter 4 above): Formative assessment and feedback to students must be provided for all modules in the current curriculum as well as being built into the new curriculum, so that students are able to evaluate their progress toward achieving the required learning outcomes for every teaching module and clinic.

Monitoring and assessment of teachers and instruction

A system must be available to allow students to evaluate teacher performance and teaching.
Students must be able to participate in the development of the curriculum in general.

Findings

5.45 End of module reviews are completed by students to provide feedback on features that have helped or hindered effective learning. Some teachers incorporate additional rolling evaluations into their modules so that issues can be corrected while the module is still being delivered.

5.46 Student representatives attend most school committees and boards and provide feedback on all aspects of the programme, including facilities. Final-year students contribute to the National Student Survey which evaluates the degree experience and satisfaction levels nationally. In 2011, 81% of veterinary students nationally took part. Liverpool's veterinary degree has

consistently scored highly on this national scheme, achieving a 95% satisfaction rate from students in 2012 (compared to an average for the sector of 91%).

Comments

5.47 There is good student involvement in the School's committees, although it was not altogether clear whether recent graduates and senior students had been actively involved in the recent curricular revisions.

Suggestions

5.48 It is suggested that students are invited to become more actively involved in discussions to revise the curriculum.

Student welfare

Adequate measures should be taken to minimize the risk of zoonotic diseases as much as possible (e.g. vaccination against rabies)

The establishment must provide or have a right of access to a system of routine and special guidance for students, especially those with social problems or those having difficulties with their studies.

The guidance programme should also cover future career development and/or job selection.

Findings

5.49 Students participate in most of the decision-making meetings, being represented on six of 12 School committees. There is a strong veterinary student body (Liverpool University Veterinary Society – LUVS), of which most students are members.

5.50 The University operates hardship funds providing small amounts of money for students facing severe financial difficulties. The number of applications for these funds has increased in recent years.

5.51 Students spend their first three years based in Liverpool with adequate supply of university halls of residence and other private accommodation. In years 4 and 5, most students move to the Wirral to be nearer to Leahurst and use cars or bicycles to get to the campus. Students are on the whole satisfied with the availability and cost of their accommodation.

5.52 In Liverpool, there are learning zones (for group learning and private study) in the two main libraries, as well as PC and laptop rental services. The new Thompson Yates building also provides around 40 places for students for group learning sessions. In Leahurst, the library provides eight PCs and 13 places for quiet reading, 21 places for group study, and wireless internet connection (wifi) is available.

5.53 Liverpool students have easy access to a wide support programme. Each student has her/his personal tutor, who they meet at least once a semester to discuss their personal development plan.

5.54 Liverpool also operates an effective peer supporter programme, whereby 24 students have been fully trained as counsellors. Peer supporters are located at both campuses and overseen by two senior tutors. The service is well supported. Additionally, students can contact (or be referred to) several specialist university support teams (pastoral, disability, financial, international support team), a career and employability advice services and a clinical psychiatrist. Students have good access to NHS medical care.

5.55 Health and Safety: various codes of practice are available to students via the University intranet, which students can also access from private computers: safety and biosecurity procedures, the code of practice on animal allergens, the code of practice on animal hazards and the code of practice on working with animals. Protective garments (gloves, coats) are provided by the University. The University does not make vaccinations for TB, hepatitis B or tetanus a requirement.

Comments

5.56 The School is to be commended for promoting active student engagement through feedback on teaching and involvement on committees.

5.57 As regards student facilities: the loss of the previous veterinary school building in Liverpool as a gathering centre for veterinary students did not seem to overly concern the students who spoke to the Visitors, although some doubts were raised as to whether the new building would provide the same social space for students that was appreciated by older students so much in “the old vet building”.

5.58 As part of a large metropolitan university, students have a wide range of excellent sporting facilities available to them, including some run by the veterinary student society. However, the Visitors heard that some students were unable to participate in university level sports activities as their veterinary timetable was beginning to encroach on the traditionally free Wednesday afternoon.

5.59 The number of reading spaces in the group learning area (~20) at the Leahurst library is small, considering the number of students that might take advantage of this study environment (~300).

5.60 There are no effective public transport links between the two sites. Comments were made that a journey from Leahurst to Liverpool campus or vice versa, for meetings and seminars, fills half a day.

5.61 There are adequate guidance services provided at the Liverpool campus. A counsellor is to visit the Leahurst campus on a regular weekly schedule. The peer support scheme is an effective and exemplary innovation to support students. It has resulted in more veterinary students seeking counselling support from the University’s counselling service. The introduction and resourcing of the peer support scheme is commended.

5.62 There is a successful “buddy” system, whereby students from one year mentor a student from a lower year. The pairing of a 4th year student with a 5th year helps to ease the transition to the clinical rotations as well as helping to consolidate learning for the 5th year student.

5.63 Students are made aware of guidance regarding zoonotic disease and biohazards through being directed to intranet based resources that they are expected to read and abide by. However no assessment is done to ensure that students have sought and understood this information.

Suggestions

5.64 It is suggested that students’ knowledge of biosecurity and biohazard procedures are assessed before they are allowed to proceed with laboratory and practical sessions if the School relies on referring students to the intranet to gain this information

5.65 The School should review the policy regarding vaccinations required by students.

5.66 The School should consider increasing the number of reading/private study spaces at the Leahurst library (20 available, for 300 students).

5.67 The School should seek ways to improve the transport and other communications links (eg. high speed data/video links) between Leahurst and Liverpool, especially with a view to introducing vertical integration within the new curriculum.

5.68 The School should seek to avoid timetables encroaching on Wednesday afternoons, if possible, so that veterinary students are free to participate in university level sports, not only for their physical health but also to assist their identification with the wider university community.

Chapter 6 – Facilities and equipment

The site, buildings and its equipment should be conducive to teaching and adequate for the number of students enrolled.

Buildings, for both basic and specialist facilities must be adequate and suited to the teaching programme.

Health and safety standards must be conscientiously observed, as should the requirements of acceptable laboratory practice.

The practical side of animal production must be taught on the institution's own farms or on farms to which it has access, to sufficiently small groups of students, thereby allowing hands-on experience for all.

Adequate and hygienic facilities for the humane treatment of animals must be available, including provisions for hospitalisation, for operative surgery and recovery from anaesthesia, for exercise and the isolation of infectious cases.

The clinical and hospital buildings must be up-to-date, clean and well maintained, and should be at least as adequate as those available in the private sector in the individual states.

The diagnostic, medical and surgical equipment provided must promote state-of-the-art practice of veterinary medicine and surgery.

Institutions must have a mobile/ambulatory clinic for farm animals or equivalent facilities so that students can practise field veterinary medicine under expert supervision.

Where practical training involves the use by the institution of material obtained from slaughterhouses and unfit for human consumption, vehicles and facilities must be properly adapted, maintained and operated to ensure the safety of students and staff and to prevent the spread of infectious agents.

Findings

6.1 Substantial University and School investment in buildings and equipment and the reorganisation of Faculty and School structures into themed Institutes has allowed the School to transfer and develop the activities formerly associated with the old building into new and much-improved facilities.

6.2 At the Liverpool campus, facilities for the teaching of basic sciences have been developed and now comprise a new school home, a veterinary teaching suite with a wet laboratory able to house up to 160 students for dissection classes and new laboratory facilities for microscope and practical classes.

6.3 The Thompson-Yates Building has been re-developed to provide a school administration and student support hub. This development includes a student social learning zone with workstations for self-directed individual and group learning for approximately 40 students. There is also a museum area which forms the main entrance and public face of the School. It is flexibly available for both staff and student use such as individual study. There is wifi connectivity in all areas as well as cabled access to the net.

6.4 The Veterinary Teaching Suite is a fully refurbished building that houses a clinical skills laboratory on the ground floor. On the first floor, there is a large student wash and gown-up room leading to

the two main practical teaching rooms where dissections, food hygiene and other "wet" classes are held. These two rooms can be opened to produce one large room with 160 places.

6.5 Preclinical and paraclinical practical classes have been transferred to the Life Sciences laboratories. These facilities consist of two suites of three laboratories . The laboratories are suitable for work at containment level 2. This is sufficient for parasitology and microbiology teaching. The rooms are also used for histology, (anatomy and pathology), haematology, food hygiene and preclinical (bio)veterinary sciences, (biochemistry, physiology, etc.). There are 300 student microscopes and 24 dissection microscopes for anatomy, pathology, microbiology and parasitology teaching.

6.6 The main building on the Leahurst campus accommodates the main reception, administration office and student experience offices, a student common room, lecture theatre, clinical skills laboratory, two data centres and a post-mortem room suite that comprises a large post-mortem room for routine diagnostic work and a smaller post mortem-room for teaching purposes (mainly undergraduate student necropsy classes).

6.7 The old Small Animal Teaching Hospital (SATH), formerly in Liverpool, moved to Leahurst in 2007 into a new £9m development. The closure of the Brownlow Hill site in Liverpool has allowed pathology (histology and post-mortem facilities) to move to Leahurst where the proximity to SATH can be exploited to mutual advantage. The Small Animal Practice (SAP) has remained in Liverpool in new 605m^2 facilities adjacent to its former site in Liverpool.

6.8 The Philip Leverhulme Equine Hospital is a totally refurbished and modern unit. The new Livestock Health and Welfare Unit, Farm Practice, and Leahurst Learning Centre (with seminar rooms, clinical skills lab, changing rooms, office space) were being built at the time of the visit.

6.9 At Leahurst, there is a Home Office-licensed Behavioural Isolation Unit and Small Mammal Centre. Adjacent to this is animal accommodation for cattle, sheep and pigs.

6.10 Leahurst also hosts the hub of the National Consortium for Zoonosis Research, an international network of research groups, with its own building comprising offices and meeting rooms.

6.11 Leahurst House has been converted to conference facilities, with four meeting rooms for up to 40 people, and three smaller rooms which can be used for group teaching, as well as the offices of the CPD Unit. There is also a refectory, bar, common room and fitness suite.

6.12 Other buildings at Leahurst include Ritchie House with offices primarily for SATH staff, Oxenhale Laboratory (small category 2 facility), and the Wellcome Building with offices and laboratories used by staff and postgraduates for research and some diagnostic services.

6.13 The University owns two farms used for teaching:

- Wood Park is a dairy farm with a 185-cow closed dairy herd. It has been designated the "Tesco Centre of Dairy Excellence"; it has a viewing gallery for student teaching, seminar rooms and "wet room" for demonstration and teaching.
- Ness Heath is a mixed farm with 470 breeding ewes, 20 breeding Gloucester Old Spot sows and 20 Hereford beef suckler cows with followers. All animals are used for teaching purposes for years 1 – 5. This farm is used as a focus for studies in beef and sheep clinical and population medicine, and is used during the lambing season for teaching ovine obstetrics, with students providing night cover for lambing ewes.
- Both farms have high speed internet access allowing remote monitoring of animals by students.

Comments

6.14 The new buildings and refurbishments on the Liverpool campus provide attractive working environments for students. These include the School Administration and Student Support Hub in the Thomson-Yates Building that provides an attractive “home base” for students but offers only limited available space in view of student numbers on the Liverpool campus site. The Veterinary Teaching Suite including the clinical teaching laboratory and two wet/dry teaching laboratories is attractive and well equipped. The practical Teaching Laboratories A-F in the School of Life Sciences are adequate for teaching. It was noticeable that there were no obvious displays of safety equipment such as safety showers or eye washes despite the laboratories being used as microbiology laboratories such as bacterial staining. Lecture theatres appeared to be adequate in size and resources at the Liverpool campus, but the Leahurst lecture theatre is too small to accommodate the numbers enrolled in the current first year.

6.15 It was not clear to the Visitors at what level the responsibility for health and safety resided. There did not appear to be any process for the replenishment of first aid boxes. Fire extinguishers should not be used to prop open doors.

6.16 There have been substantial improvements in buildings and associated equipment both on the Liverpool and Leahurst sites. The School has benefited from significant investment and support from the University and the Faculty for these developments as well as gaining external funding through philanthropic donations and applications to external funding bodies.

6.17 Wood Park Farm (dairy) and Ness Heath Farm (beef, sheep and pigs) have excellent facilities for teaching animal husbandry but produce a limited volume of clinical cases. They are nevertheless adequate for the purpose of instruction through the access they give students to production animals and exposure to farm management and the production cycles of farm animals.

6.18 The Visitors commend the approach, ethos and staff at both farms and were particularly impressed with how students were encouraged to make use of the facilities and animals at the farm to improve their handling and non-invasive techniques. Wood Park Farm is a genuinely commercial dairy farm and serves as a demonstration farm for the 720 farmers who are part of the Tesco Sustainable Dairy Group. Ness Heath Farm is designed specifically to create teaching opportunities, with some research facilities (Home Office Licensed). However, the Visitors considered that, although the facilities are currently fit for purpose, some refurbishment of the animal housing, especially for the pigs, will be required soon.

6.19 The Livestock Health and Welfare building is dated and in parts not fit for purpose, such as in the preparation and changing areas. However, these facilities were being refurbished and extended at the time of the visit, with work due to complete in 2013. The re-furbished facilities will enhance the teaching environment and function of this unit and bring it closer to the standard of facilities for other units on the campus.

6.20 The Small Animal Teaching Hospital, Small Animal Practice and Philip Leverhulme Equine suite (including the new Barrie Edwards Intensive Care Unit) provide excellent, up to date, well maintained facilities and the University is to be congratulated for having the foresight to invest in these buildings.

6.21 An intensive care unit has been incorporated into the SATH and is actively used for some recovery and longer term patients.

6.22 Isolation facilities have been provided but could be improved if the notices detailing their correct usage were sited in an area prior to entry.

6.23 Diagnostic imaging is now an important part of the SATH with two MRI scanners, a CT scanner and facilities for radiotherapy.

6.24 The ambulatory clinics (large animal and equine veterinary practices) were functioning and provided small groups of students with experience of general practice.

6.25 For food hygiene, students visit two slaughterhouses, one for sheep, the other for chickens. These provide good facilities for pre- and post-mortem training for students, although access to a wider range of species should also be considered.

6.26 The extent to which student numbers might be increased in the future was not altogether clear to the Visitors, but it was observed that current facilities and case loads appeared to be at maximum capacity. For example, the lecture theatre at Leahurst would not readily cope with greater numbers without dividing students into adjacent rooms during lectures, which would not be an ideal solution. The hospital accommodation in the SATH is already at maximum capacity on several days during most weeks, leaving little capacity for growth in patient numbers. If student numbers were to increase, there would need to be a concomitant increase in patient numbers to provide the necessary teaching caseload.

6.27 The University is to be commended for the investment that it has made and is continuing to make in the facilities for veterinary teaching in Liverpool and at Leahurst.

Suggestions

6.28 Attention should be given to ensuring that facilities continue to be appropriate for student numbers. If a decision is made to increase numbers, a business plan would be needed to show how facilities and clinical case numbers would be increased accordingly so that the quality of student experience would not suffer.

6.29 The School should clarify responsibility for health and safety and ensure that health and safety compliance across all sites is monitored and actioned promptly, including first aid boxes.

6.30 The notice detailing the rules necessary for the care of animals and the prevention of the spread of infection from the isolation facility need to be sited outside the unit where they can be observed prior to entry.

6.31 The School should consider expanding the range of abattoirs visited by students to give them experience of other species such as cattle and pigs. This could be covered by EMS placements.

Chapter 7 – Animals and teaching material of animal origin

The farm/s where veterinary field training is performed should contain the major animal species relevant to veterinary practice in the individual state. Farm facilities and equipment should be up-to-date, and at least as good as those available in the private sector of the countries concerned. The farm should be a model of animal welfare for the profession and the students.

Adequate clinical material including all of the major species relevant to veterinary practice in the state concerned must be made available to the students.

The clinical material should be varied, providing experience in routine and complex cases.

The clinical services must have access to appropriate diagnostic support.

Clinical and hospital facilities should operate day and night for most of the year, i.e. like a normal practice.

The clinical department(s) must maintain close links with the pathology and other diagnostic services so that students can follow cases where animals die of natural causes or are euthanized, and conduct post-mortem examinations. If necessary, pathology material should also be obtained from outside the institution to enhance the learning experience.

An adequate data retrieval system must be available so that case studies can be undertaken.

The Faculty must ensure that the students are exposed to an adequate supply of teaching material in the veterinary public health (including food hygiene) areas.

Findings

7.1 Live animals are used in practical anatomical training. Staff dogs are used for live anatomy classes and auscultation. Animal collections are also brought in for live anatomy and these include numerous birds, small mammals and reptiles. The animal handling classes are delivered on the University dairy and beef/sheep/pig farms in the first term of undergraduate studies.

7.2 Fresh dog cadavers are collected each week with a student:cadaver ratio of 5:1. The dog cadavers are collected on a weekly basis from the authorised dog pounds and stored at 4^{o}C. Almost all anatomy studied on the dog is done using whole fresh cadavers.

7.3 An adequate supply of fresh parts of animals rather than whole cadavers are used in anatomy teaching on ruminants and equine.

7.4 Radiographs, models and computer-assisted teaching are also used in anatomy teaching in addition to preserved specimens and bones and skeletons.

Table 7.1: Material used in practical anatomical training

	Dog		Ruminant		Equine		Other	
	2010/11	2009/10	2010/11	2009/10	2010/11	2009/10	2010/11	2009/10
Live animals[1)]	7	7	180	180	4	4	50	50
Cadavers[1)]	200	200	5	5	0	0	90	90
Specimen[1)]	0	0	100	100	60	60	50	50
Other[2)]								
Preserved specimens	50+	50+	50+	50+	50+	50+	50+	50+
Bones & skeletons	100+	100+	100+	100+	100+	100+	100+	100+
Radiographs	100+	100+	100+	100+	100+	100+	100+	100+
Models	5	N/A	1	N/A	2	N/A	4	N/A
Computer-assisted teaching	9	9	0	0	1	1	0	0

7.5 Table 7.2 below shows that the School has good access to most species for the teaching of necropsies and pathological anatomy. An average of 354 necropsies for dogs, cats and 'other' species over the last 3 years is quoted. If only dogs and cats are included, the average is 174. The use of this figure to calculate the ratio R20 gives a denominator of 1.6.

Table 7.2: Number of necropsies over the past three years

	Species	Number of necropsies			Average
		2010/11	2009/10	2008/09	
Food-producing animals	Cattle	112	159	116	218
	Small ruminants	71	66	52	
	Pigs	29	13	17	
	Other farm animals	3	7	9	
Equine		78	61	92	77
Poultry		105	169	158	168
Rabbits		25	25	23	
Companion animals/exotic	Dogs	134	124	151	354
	Cats	36	29	47	
	Other (reptiles, amphibians, fish, primates, rodents)	172	233	137	

7.6 The University's two working farms provide first hand experience of dairy cattle, pigs, sheep and beef suckler herds. There were no issues with animal welfare on the farms.

7.7 The clinics are open all year round, operating a 365/24-hour on call service; the small animal practice outsources its on-call to the Alder Veterinary Hospital. Numbers of cases received for consultation and hospitalisation are listed in Table 7.3.

Table 7.3: Number of cases: a) received for consultation, and b) hospitalised in the Faculty clinics, in the past three years

Species		Number of cases						Average
		2010/11		2009/10		2008/09		
		a	b	a	b	a	b	
Food	**Bovine**	41	62	71	62	43	82	a)137
	Ovine,	45	40	67	39	48	32	b)120
	Porcine	20	3	26	6	23	20	
	Farm poultry	11	0	10	0	5	0	
	Camelids	0	0	2	6	1	9	
Poultry								184
Rabbits		132		170		250		
Equine		1904	1262	1938	1133	2028	1140	a (1956) b (1178)
Companion animals/ exotics	**Canine**	18822	2152	13670	2782	1283 0	3449	a (18617) b (2794)
	Feline	3435	326	3656	614	3704	957	a (6259) b (632)
	Other**	126	0	173	0	303	0	
	Rabbits	195	0	84	0	269	0	
	Rodents	45	0	15	0	37	0	

7.8 The SAP and SATH have their own laboratory facilities which are better than those the students would meet in most general practices, while more complex investigations are performed in the veterinary school laboratory or outsourced to other commercial laboratories.

7.9 For food hygiene and public health, there is an adequate supply of farm animals and products of animal origin for the practical training of students in veterinary public health, food hygiene, inspection and technology. For meat inspection, organs and carcasses are collected from local abattoirs. The collection of red meat samples is carried out throughout the year by a meat inspector who also assists in teaching. Samples are frozen and archived.

7.10 For classes in food hygiene and technology, samples are bought fresh and then stored; a variety of food products are also used to teach about packaging methods and expiry dates. For the milk practical samples are collected from the farm before heat treatment and different types of milk are used for tests. Fish is obtained from wholesalers and honey from local producers and shops.

Comments

7.11 The numbers and ratios for necropsies would appear to be at or above the level obtained from previous positively-evaluated faculties. There is a good range of species available for necropsy. The teaching in pathology has benefited from the new facilities and a good availability of material, both of which are to the advantage of the students.

7.12 The provision of material of animal origin and animals for the course is satisfactory. An active clinical farm practice, two farms and referred animals provide adequate opportunities for students to be taught. However, in the Visitors' opinion, if the numbers of students were to increase much more, the numbers of animals available for teaching may become inadequate.

7.13 There is also an adequate supply of teaching material for veterinary public health and food hygiene. Students are exposed to a sufficient variety of food samples of animal origin in order to assess their quality and hygiene, and also have adequate material for training in meat inspection in slaughterhouses.

Suggestions

None

Chapter 8 – Library and learning resources

The Library and related services must help to meet the institution's objectives and lend support to basic training, research and postgraduate studies.

To this end, the Library must offer a comprehensive and up-to-date range of books and journals. Its opening hours, regulations and loan arrangements must facilitate self-learning. The institution must provide an adequate number of places for private study in the library or elsewhere on site. The Library must be professionally managed, have good working relationships with other libraries in the area, and provide modern on-line communication facilities for use by staff, students and researchers. In institutions where departmental libraries are available, the main library should have documentation on the material held in the other libraries.

The Faculty must provide audio-visual and information technology facilities meeting the needs of establishment.

Findings

8.1 There are two main libraries on the Liverpool campus (the Sydney Jones and the Harold Cohen) and there is one library on the Leahurst campus (the Leahurst library). Through these libraries, the students of the veterinary school have access to a total of 1,860,000 volumes, around 3,000 periodicals in printed format and over 19,000 electronic journals. The libraries provide access to around 520,000 electronic books, 40,000 electronic journals and online access to most major databases. The entire stock of the library is included in its online catalogue and all electronic resources can be accessed in the library or via the web.

8.2 The library stock covers the subject area specific to relevant topics covered in module programmes based on recommended reading by tutors or lecturers. The collection covers all aspects of veterinary science, medicine and surgery, public health, animal husbandry, animal science, animal health, animal welfare, biosciences, environmental and agricultural studies, food sciences and technologies.

8.3 The libraries on the Liverpool campus provide about 1,830 computers and study spaces, zoned areas for group and quiet study and staffed helpdesks. The two libraries are open 24 hours Monday to Friday, throughout the academic year and there is a 24/7 renewal line for loans. The Sydney Jones has seating for 615 readers and approximately 400 PCs and the Harold Cohen has seating for 500 readers and 295 PCs. Both Libraries have study rooms available for use.

8.4 All University library staff must have library qualifications and staff can train or specialise in a specific area. There is training for both medical librarianship and veterinary library studies. The current librarian at Leahurst is trained in medical librarianship. Staffing levels can vary but there is always one librarian on-site at Leahurst. The librarian at Leahurst is a full time employee.

8.5 The Harold Cohen Library contains the main collection in veterinary science. The Leahurst department library is stocked specifically for the veterinary school.

8.6 The Leahurst Library has eight study carrels, eight desktop computers, 13 places in quiet study area and 21 places in the group-session area. The library has a networked IT system and wifi access. There is networked online access catalogue and a self-issue terminal. The library is open 24/7 but unstaffed at weekends. During the week, the library is staffed from 09.00-18.00 Monday-

Wednesday and from 09.00-16.00 Thursday and Friday. The Leahurst Library is being refurbished.

Comments

8.7 The Libraries of the University of Liverpool are professionally managed and provide a comprehensive and up-to-date range of books and journals for veterinary education. The opening hours, study rooms and availability of computer services, databases and online literature searches facilitate self-learning.

8.8 There is considerable availability of audio-visual and information technology facilities in the buildings and facilities of the School of Veterinary Science.

8.9 The number of reading spaces in the group learning area (c.20) and the quiet study area (c.13) at the refurbished Leahurst Library is small, considering the number of students that might take advantage of this study environment (~300). With increasing student numbers, the availability of additional study places in the Leahurst Library should be considered.

Suggestions

8.10 The School should continue to develop its data and information technology facilities.

8.11 The School should consider increasing the number of reading/private study spaces at the Leahurst library. Increased student numbers should be accompanied by increased study places in the Library.

Chapter 9 – Admission and enrolment

The veterinary course is a rigorous one, and students admitted must have proven capabilities.

Although admission and enrolment are the legal responsibility of the individual countries, the selection should be competitive, based upon academic achievements and on other criteria.

Admissions must also be compatible with facilities and staff numbers, bearing in mind the need for low student/staff ratios, particularly in the clinical side of the course, and the amount of clinical and pathological material available.

Findings

9.1 The limit to the number of students admitted each year is 160. This limit is determined by resources, in particular staff and teaching space. The number of government-funded places is determined at Faculty level.

9.2 The selection process involves three stages. Stage 1 assesses academic ability, with all applicants meeting the minimum academic requirements progressing to stage 2. Stage 2 is competitive and is used to select for interview. The School has approximately 500 interview slots and approximately 1000 applicants proceed from stage 1. On the basis of a work experience questionnaire the applicants are ranked and the top 500 invited to interview. Stage 3 is the interview.

9.3 A multiple mini-interview process is used with candidates rotating around nine stations. A total of five minutes is spent at each station. Stations cover knowledge of the veterinary profession, a scientific paper, motivation/extra-curricular activities, discussion of a case seen in practice, discussion of an ethical scenario, welfare, and stress in the profession. Each applicant experiences the same interview, and a total of seven individuals are involved in making a judgement on each candidate. Interviews are conducted by a mixture of veterinary research staff, clinicians and members of the profession.

9.4 The School has a minimum A-level (or equivalent) academic requirement to ensure entrants have an equal knowledge base in Biology at A2-level, Chemistry at AS-level or above, Physics at GCSE or above, Mathematics at GCSE or above and English at GCSE or above. Various alternative qualifications are considered, including BTEC National Diploma with Distinction grades, and Access to HE qualifications through approved colleges.

9.5 The School does not anticipate significant change in applicant numbers and gave the Visitors the assurance that intake numbers would not increase above 160.

Table 9.1: Undergraduate student composition (2011-12)

Total number of undergraduate students	608
Total number of male students	130
Total number of female students	478
Foreign students	23
- from EU countries	17
- from non-EU countries	6

Table 9.2: Intake of veterinary students in the past five years

		Standard intake				
2011-12	1318	107	Rising year 0	Full cost (5- year programme)	Full cost (4- year programme	**TOTALS**
2010-11	1343	102	4	3	23	**137**
2009-10	1247	90	0	12	19	**133**
2008-09	1096	99	0	5	16	**111**
2007-08	1114	89	0	1	27	**127**

Table 9.3: Student flow and total number of undergraduate veterinary students

Students present after admitted year 1	**Number**
1st year	137
2nd year	131
3rd year	109
4th year	119
5th year	89
6th year	19
>6th year	4
TOTAL	**608**

Table 9.4: Number of students graduating annually over the past five years

Year	**Number graduating**
2011-12	115
2010-11	115
2009-10	102
2008-09	124
2007-08	91
AVERAGE	**109**

Table 9.5: Average duration of studies (graduates of 2011-12)

Duration of attendance	**Number**	**Percentage**
4 years (accelerated programme)	12	11%
5 years (including intercalaters)	100	89%
6 years	0	0%

Comments

9.6 The School has a limit on the intake of veterinary students of 160 but has not taken in that number over the last five year's intakes.

9.7 The requirements for knowledge in the Basic Subjects of Physics, Chemistry, Animal Biology, Plant Biology and Biomathematics are met by the minimum academic requirements for entrance to the School.

9.8 The application and enrolment processes at Liverpool were well understood and well appreciated by the students who had gained access to the BVSc degree.

9.9 The drop-out rate is very low and demonstrates the rigour of the admission process.

9.10 The number of students admitted is compatible with facilities and staff numbers, particularly on the clinical side of the course with the amount of clinical and pathological material available. There was some concern about the possibility of an increase in student numbers which would require investment in infrastructure and staffing in order to maintain the current satisfactory position.

9.11 The School is to be commended on its admissions system, in particular the multiple mini-interview approach.

Chapter 10 – Academic and support staff

The competence of the full-time academic staff must enable coverage of all the subject areas of the curriculum, allowing research based teaching except where alternative arrangements are made for outside teachers. The number of full-time academic staff (FTE) must allow teaching of small groups, thus maximising the learning opportunities for the students. A minimum percentage of 70% of the academic teaching staff should have veterinary training. Teachers of clinical veterinary subjects must be veterinarians, as should be those carrying out para-clinical services reporting to the public.

Part-time staff, residents and graduate students may lend support to full-time academic staff if they are appropriately integrated into the instructional programme. The Faculty should define which academic level is required.

Overall, the workload of the academic staff should be organised in such a way that apart from teaching and clinical duties, they should be able to perform research and other non-teaching-related academic activities within working hours.

Appropriate teacher supervision requires satisfactory teaching staff/student and teaching staff/support staff ratios.

Findings

10.1 Staff teaching on the BVSc degree are drawn from the Faculty's research institutes and from the School. 52 staff in the School of Veterinary Science hold RCVS, European or American Diplomas, or RCVS Fellowships.

10.2 The allocation of staff to the School is part of the planning cycle. Requirements for additional staff are determined by the senior management group and allocation to divisions is made by areas of need, based on new or increased activity. For research posts allocation is determined by consultation between the relevant research institute and the School. The current staffing levels allow group rotation teaching to be undertaken in groups of between four and six students.

10.3 Over the last decade many additional posts have been filled in particular in the small animal division but also across other areas of the School. As with other veterinary schools, retention and recruitment of staff is problematic in certain disciplines, usually the clinical or paraclinical areas (eg. small animal oncology). An exercise took place during 2012 to identify a pathway for progression for academics in the veterinary disciplines. This is a three-phase exercise with phase 1 given University approval in July 2012. Phase 1 outlines a pathway for clinical staff where achieving an RCVS Diploma or equivalent allows them to move to a higher grade and RCVS Specialist status allows consideration for promotion to senior lectureship with the specialist status being used to score their scholarly and knowledge exchange activity. Phase 2, consideration of a salary supplement for staff in areas difficult to recruit, is still under consideration, as is phase 3, the payment of stipends for managerial and other specific roles within the School.

10.4 Of academic staff, 80% are veterinary surgeons. This reflects a high proportion of the academic staff working in clinical and paraclinical areas, although several staff in the pre-clinical teaching are also qualified veterinary surgeons.

Table 10.1: Personnel in the establishment provided for veterinary training

		Budgeted posts (FTE)		Non-budgeted posts (FTE)		Total (FTE)	
1. Academic staff		VS	NVS	VS	NVS	VS	NVS
	Teaching staff (total FTE)*	84.535	5	6.9		91.435	5
	Research staff (total FTE)**	12	3.85			12	3.85
	Total FTE	96.535	8.85	6.9		103.435	8.85
	Total FTE (VS + NVS)	105.385		6.9		112.285	
	FTE providing final year teaching*	82.5857		6.9		89.4857	
2. Support staff							
a) Responsible for care & treatment of animals		78.25		1		79.25	
b) Responsible for the preparation of practical and clinical teaching		25.95		0		25.95	
c) Responsible for administration, general services, maintenance etc		36.92		0		36.92	
d) Engaged in research work		2.67		0		2.67	
e) Others							
	Total support staff	143.79		1		144.79	
3. Total staff						257.075	

* Teaching staff equals staff in the School of Veterinary Science
**Staff in Research Institutes are only included for their teaching and clinical FTE

Table 10.2 Allocation of academic (veterinary surgeon and non veterinary surgeon) teaching staff – expressed as FTE – and support staff to the various departments

Department Name	Academic teaching staff								Support staff (See table 10.1)		
	Professor		Reader/ Senior Lecturer		Lecturer		Other		Tech-nical	Animal Carers	Admin
	VS	NVS	VS	NVS	VS	NVS	VS	NVS			
School & Veterinary Education					3	2			17.95	0	17.8
Epidemiology & Population Health	1.7	0.2	0.4	0.5		0.2			0	0	0
Equine Division	1		3.75		10.65		8		4.71	11.9	12.08
Infection Biology		0.7	0.95	0.35	0.2	1.2			7.63	0	0
Livestock Health, Welfare, Farms			3.8	1	4.3		3		1.83	7.51	0
Musculoskelet-al Biology			0.4	0.5		1.3			1		0.1
Public Health	0.2				3.5				*	*	*
Small Animal Division	1.5		7.15		16.88		24		0	29.24	16.77
Integrative Biology		0.05		0.7		0.15			3	1.74	0
Veterinary Pathology	0.25		1		4.8		3		9.8*	0	1.78*
TOTALS	4.65	0.95	17.46	3.05	43.33	4.85	38		45.92	50.39	48.53

* For support staff Public Health & Veterinary Pathology are together

Table 10.3: Ratios staff: students

		Denominator
R1	no. total academic FTE in veterinary training / no. undergraduate veterinary students = 112.3 / 608 = 1 / 0.185	5.4
R2	no. of total FTE at Faculty / no. undergraduate students at Faculty = 112.3 / 714 = 1 / 0.16	6.25
R3	no. total VS FTE in veterinary training / no. undergraduate veterinary students = 103.4 / 608 = 1 / 0.17	5.88
R4	no. total VS FTE in veterinary training / no. students graduating annually = 103.4 / 109 = 1 / 0.95	1.05
R5	no. total FTE academic staff in veterinary training / no. total FTE support staff in veterinary training = 103.4 / 144.8 = 1 / 0.71	1.41

Comments

10.5 The figures provided in the SER by the School were revised during the visitation and the amended tables and ratios are shown above. The ratios are within the acceptable range for EAEVE positively evaluated veterinary schools.

10.6 The academic and support staff are dedicated to their teaching of veterinary students. Students spoke highly of the teaching that they received at all levels of the course. Clinical teachers are dedicated to teaching students well and expressed a preference to extend the time they spend teaching rather than to increase student group sizes and reduce the learning experience of students. The Visitors commend the integration of the teaching staff into the wider professional body through their engagement in the various specialist forums and associations.

Suggestions

None

Chapter 11 – Continuing education

The institution must co-operate with other professional organisations and competent authorities in the design, implementation and quality control of continuing education programmes.

Findings

11.1 The School of Veterinary Science has a dedicated CPD unit which delivers CPD for veterinary surgeons and veterinary nurses, in the form of day and evening courses and online taught modules. Considerable expansion in CPD delivery has taken place over recent years. This CPD delivery is in line with the Faculty and University strategy and the veterinary CPD delivery contributes significantly to the Faculty targets. Veterinary CPD is an important part of the University of Liverpool's strategic plan to enhance Knowledge Exchange (KE).

11.2 The assessment of the taught CPD modules has been accredited by RCVS as part of the RCVS postgraduate Certificate in Advanced Veterinary Practice qualification (CertAVP). These modules are credit-bearing within the University's award system.

11.3 Academic processes for taught CPD whether credit bearing or non credit bearing are controlled by Faculty academic standards and quality assurance (FASQC). All taught modules must undergo approvals via the FASQC committees and abide by the central ordinances and codes of practice on assessment specific to CPD provision. Approval starts locally in the Schools post graduate taught board and the School of Veterinary Science's Board of Studies; both committees must approve the module before it progresses to the Faculty's FASQC.

11.4 The taught modules are moderated following the University's external examiner systems and formalised module review boards occur at the end of each module. The moderated and review board approved assessments (for both individual modules and for the synoptic assessments for the full award) are fed back to the RCVS which is the awarding body for the CertAVP qualification.

11.5 Delegates undertaking modules have the opportunity for anonymous online feedback for each module via a survey. This feedback is reviewed each CPD semester allowing for development and improvements of the modules. Over 50% of delegates have responded to module feedback surveys.

11.6 Day and evening courses do not require FASQC approvals but follow the centrally developed feedback protocols with both paper and online feedback methods offered to all delegates participating.

11.7 Over 35 clinical academics from the School or Faculty institutes have contributed to CPD in the past 12 months and there is a dedicated team of academics (2.2 FTE) who contribute entirely to the provision of veterinary CPD.

11.8 CPD is a requirement for all veterinary surgeons on the register of the RCVS and the CPD records of veterinary staff were checked during the visit and met RCVS requirements.

11.9 During the academic Year 2011-12:

- 354 veterinary surgeons attended equine CPD practical course days – 183 hours of training provision
- 354 veterinary surgeons attended small animal CPD practical course days or evening meetings – 115 hours of provision
- 213 veterinary surgeons enrolled on nine CertAVP modules in CPD semester 1
- 241 veterinary surgeons enrolled on 14 CertAVP modules in CPD semester 2
- 299 veterinary surgeons enrolled on 20 CertAVP modules in CPD semester 3

Comments

11.10 The University and School of Veterinary Science are to be commended for the strength of CPD provision to the profession, and in particular for fully embracing the provision of RCVS CertAVP modules for post graduate veterinary surgeons. In addition to the provision listed in the SER, 19 modules are being offered for attendance and e-learning to equine veterinary surgeons, four modules for production animal veterinarians, and 14 modules for small animal veterinary surgeons. The key skills module in Foundations of Advanced Veterinary Practice is also available through Liverpool.

11.11 The provision of CPD is an income-generating business unit yet there appeared to be no clear idea of the profit / loss generated by this dedicated department.

Suggestions

None

Chapter 12 – Postgraduate education

Towards a qualification in a specific area

The institution must co-operate with other professional organisations and competent authorities in the design, implementation and quality control of continuing education programmes leading to qualifications in the clinical and paraclinical fields, including the achievement of national specialist recognition.

Where appropriate, institutions should aim their programmes to meet the standards and regulations of the respective European specialist colleges and of the European Board of Veterinary Specialisation or equivalent bodies.

Research training

The institution must offer post-graduate training programmes by research (PhD or equivalent) based on an international-level programme in biomedical and veterinary research.

The programmes must be well designed and cover theoretical as well as practical training, leading to a certificate/degree within a period of three to four years.

The institution must provide an adequate number of places for research students

Findings

12.1 The University provides postgraduate specialty training towards a number of European Diplomas. Interns and residents are largely funded from clinical income, and are paid salaries to include tax, NI and a pension contribution. There are two externally-funded (Horseracing Betting Levy Board) studentships for equine residents, and two part externally-funded small animal residents, both of which are topped up to full salaries. All residents are expected to work towards a formal clinical qualification, such as RCVS, European or American diplomas. In addition, residents can register for the PGCert, PGDip or MSc through the MSc Veterinary Science programme (and, through the accreditation of prior learning – APL- count University-accredited CPD towards the MSc). Some residents register part time for a MPhil (research) degree. Many interns are also enrolled for RCVS-accredited modules as part of the CertAVP.

12.2 The numbers given for research students are based on students supervised by academic staff associated with the Veterinary School (ie academic staff who deliver significant teaching in the Veterinary School and are included in the School's staff list). Technically the Veterinary School does not have any research students as all research is undertaken through the Research Institutes of the Faculty of Health and Life Sciences in order that all researchers can benefit from shared facilities and critical mass. Veterinary research has always been collaborative with other disciplines across the University, with PhD students shared between departments and faculties. Thus the data presented here are comparable to those in past years.

12.3 Liverpool's Diploma in Bovine Reproduction is recognised as an external postgraduate qualification for part fulfilment of specialist status by the RCVS and European College of Animal Reproduction. All current DBR students are employed in private practice in the UK and self-funded. Clinical training forms a large part of the DBR. The duration of the DBR course is for two years; there have been approximately 6 -15 awards every two years for the past 30 years.

12.4 The MSc Veterinary Science is now in its third year. It combines the MSc Veterinary Parasitology (which used to be run through the Liverpool School of Tropical Medicine), the MSc Veterinary Infection and Disease Control and the intercalated BSc in Veterinary Conservation Medicine. It takes intercalating veterinary students, veterinarians (EU and from further afield) and postgraduates with good Honours degrees in appropriate biosciences subjects. Students can choose between modules appropriate to their interests, for example in epidemiology, parasitology, infection and disease control, and conservation science.

Table 12.1: Clinical specialty training

Clinical discipline	Number of interns	Number of residents	Diploma or title anticipated
Equine medicine and surgery	4		N/A
Equine surgery		4	DiplECVS
Equine medicine		2	DiplECVIM
Farm animal	1	2	Resident is also PT MSc
Small animal studies	4		N/A
Small animal cardiology		2	DiplECVIM (CA)
Small animal oncology		4	DiplECVIM (onc)
Small animal internal medicine		2	DiplECVIM
Small animal surgery		2	DiplECVS
Dermatology		1	DiplECVD
Imaging		3	DiplECVDI
Neurology	1	2	Residents DiplECVN
Anaesthesia	3	2	Residents DiplECVAA
Pathology		4	DiplECVP (one also considering MRCPath)

Table 12.2: Number of research students enrolled in different programmes*

Type of degree	Fulltime	Part time	Duration
PhD	79 (10 EU veterinarians, 4 non-EU veterinarians)	2 (1 EU veterinarian)	
Other doctoral level	0	0	N/A
MPhil	1	3 (3 EU veterinarians)*	
MRes**	1 intercalating veterinary student		1 year

** Residents*
***A Faculty-level MRes in Clinical Sciences, currently with 29 students (postgrads and intercalating medical students)*

12.3 Postgraduate taught programmes

Type of degree	Full time	Part time	Duration
MSc Veterinary Science	16 (4 EU veterinarians, 5 intercalating UK veterinary students, 2 non-EU veterinarians)	2 (both veterinarians, 1 also included in list of residents)	1 year (12 months) fulltime, 2 years part time.
Diploma of Bovine Reproduction (M-level)		15 (all veterinarians)	2 years
PG Diploma/MSc Veterinary Physiotherapy*		11 (no veterinarians – all qualified human physiotherapists)	2 years (Diploma) or 3 years (MSc)

Comments

12.5 Postgraduate students, interns and residents come from many countries with many identifying that they specifically came to study at Liverpool because of the standing and reputation of the School and of specific members of its staff. There is an active and vigorous postgraduate education programme occurring throughout the School and the research institutes that its staff are associated with, and for which the School should be commended.

Suggestions

None

Chapter 13 – Research

It is desirable for undergraduate students to gain experience of research by undertaking a research project and writing a report on it.

The Faculty should provide an appropriate balance for these opportunities between basic, applied and clinical research.

The Faculty should assign an appropriate number of academic and technical posts specifically to research.

The Faculty should also allocate adequate facilities, equipment and operating funds to research.

Findings

13.1 Veterinary research is carried out in the five research institutes of the Faculty of Health and Life Sciences, which integrate research across the medical, veterinary and biological sciences. The research institutes are: Ageing and Chronic Disease; Infection and Global Health; Integrative Biology; Psychology, Health and Society; and Translational Medicine. Substantial amounts of veterinary research are carried out in the Institutes of Ageing and Chronic Disease; Infection and Global Health and Integrative Biology, and many academics in the veterinary school are allied to these institutes.

13.2 In the current curriculum, all students undertake a 15-credit research project in year 3, which is designed to give them an insight into the research process. The module seeks to develop critical thinking skills, effective literature searching and scientific writing. The students also gain experience of the development of a practical research question, project design and answering the research question. The project results in a report of up to 4000 words that is assessed by both the supervisor (for the process element) and by an independent second marker (for project content). The projects can involve either wet laboratory projects, analysis of existing datasets or literature reviews.

13.3 A clinical case report demonstrating the use of evidence-based medicine is completed in year 5, and must be passed before students can sit final examinations. Part of the marking criteria for this element is the use of current and relevant literature in the chosen clinical area.

13.4 The new curriculum to be introduced in 2013 will emphasise the acquisition of research skills from year 1, with study skills sessions on literature search strategies taking place early in the first semester. Year 2 will include a substantial literature review as an element of the required coursework. Year 3 will contain the research project. The case report will be moved into Year 4. There are also plans for regular plenary research lectures, given by invited researchers, to foster enthusiasm for the research that is taking place in the School and relevant research institutes.

13.5 Electives are offered in many clinical areas, and most involve some form of clinical research task, or the use of evidence based approaches to investigate aspects of clinical disease and presentation of findings.

13.6 All students have the opportunity to intercalate for a BSc or MSc/MRes degree with the associated substantial research projects. Most intercalating students undertake these studies at Liverpool, but a number move to other veterinary schools, or other science based universities.

Examples include Marine Biology at the University of Newcastle, Developmental Biology at the University of Bath, and Control of Infectious Diseases at the London School of Hygiene and Tropical Medicine. Liverpool also hosts students from other veterinary schools who intercalate on courses at Liverpool, particularly in Conservation Medicine.

13.7 Many intercalating students have received support from the Wellcome Trust through the Clinical Veterinary Research Training award, for which the University is the administering institution. Intercalation is encouraged by introductory sessions for 1st and 2nd year students about research careers and opportunities in research. Most intercalation takes place between years 3 and 4.

Table 13.1: Numbers of students intercalating between 2008 and 2013

2008-9	2009-10	2010-11	2011-12	2012-13
12	9	7	11	7

13.8 The School offers a number of vacation studentships for veterinary undergraduates. These studentships (funded by the Wellcome Trust, BBSRC, charities and industry) provide students with a funded period of 8-10 weeks undertaking a laboratory or data analysis project in a research environment. Such summer studentships can provide data for publications and conference presentations both nationally and internationally.

Table 13.1.2: Number of vacation research studentships 2008-2012

2008	2009	2010	2011	2012
16	15	16	10	11

Comments

13.9 There are several research groups in the University and associated with the School that have reputations as international leaders in their fields. There is an active research culture in the University and School. Research led teaching is central to the delivery of the veterinary programme.

13.10 There are some concerns that veterinary research funding at undergraduate level will come under pressure with the end of the Wellcome Trust support in 2013. This, coupled with the new undergraduate fee structure, may act as a disincentive for undergraduates to engage in research opportunities. It will be important that support for clinical veterinary research within the School and the Faculty is not reduced as, without it, the principle of teaching evidence–based medicine within the undergraduate course will be compromised. It was noted that some intercalating undergraduate students have encountered difficulties with their student loan applications for their final years after undertaking their intercalated degree. To cater for this administrative problem, the University has deferred the award of the intercalated degrees until after the students have completed their veterinary course in order that they should not be classed as graduate students who would not otherwise be eligible for a loan.

Recommendations

13.11 The University should ensure that support for veterinary clinical research within the Faculty and School is not eroded so that it can continue to be the cornerstone of veterinary undergraduate teaching, as well as contributing to the advancement of the profession.

Chapter 14 – Extra-Mural Studies (EMS)

EMS must be an integral and structured part of the education and training of veterinary students. Veterinary schools will need to be able to demonstrate how it is built into the overall curriculum.

Students must undertake a total of 38 weeks of EMS before they graduate:

Twelve weeks should normally be devoted to animal-husbandry related EMS so that students gain experience of the behaviour of normal animals in their own environments.

Clinical EMS must comprise at least 26 weeks across a broad range of areas.

EMS must include the equivalent of at least one week devoted to veterinary public health, during which time visits to meat plants are essential.

Students must keep a log of their learning and experience throughout their EMS.

There must be a system in place to enable EMS providers to report back to the school on their assessment of the performance of students during EMS.

The student's experience log and the feedback from EMS providers must form a part of the student's formative assessment against the RCVS's 'Day One' competences.

There must be a member of the academic, or academically-related staff, responsible for the overall supervision of all types of EMS, including liaison with EMS providers.

There must be a mechanism to enable students to formally report on the quality of the instruction and experience of EMS placements.

Students must have access to a suitable database of EMS placements, and must be able to seek and obtain advice and guidance on the suitability of EMS placements.

Findings

14.1 Extra-mural studies at Liverpool is overseen by an EMS office with two members of academic staff and two administrators who authorise and log placements. There is currently a database to monitor pre-clinical and clinical EMS student activities, but the School will be adopting the new RCVS Student Experience Log when this is released in 2013. From September 2012, students' professional development planning tutors have begun to be involved in discussing placements with their students. There are timetabled group sessions in year 2 and year 4 for discussion of cases seen in practice. There is an EMS panel which reviews any negative placement feedback received about a student or other causes of concern raised by tutors about students and their EMS.

14.2 All students must complete the 38 week EMS requirement before graduating. For the pre-clinical component, they spend one week in each of six different sectors (sheep lambing, dairy, pigs, dogs or cats, poultry) and six further weeks in sector(s) of their choice.

Table 14 - EMS Weeks

	Compulsory Husbandry	Choice husbandry	Public health	Clinical	Total
1st year	6 weeks			2 weeks	8 weeks
2nd year		2 weeks	1 week	5 weeks	8 weeks
3rd year		2 weeks	1 week	5 weeks	8 weeks
4th year		2 weeks		6 weeks	8 weeks
5th year				6 weeks	6 weeks
					38 weeks

14.3 The EMS panel randomly selects and interviews a number of students on their placements, to check that learning outcomes have been set and that a placement journal is being kept. EMS staff also make random checks with placement providers to check on student attendance and performance. Feedback forms from placement providers are also considered and any pattern of poor feedback is taken up by the EMS coordinator and/or the EMS Panel.

Comments

14.4 The EMS system is in the process of being updated. The current manual system for approving placements, with subsequent receipt, logging and checking of EMS assessments seems to work satisfactorily. The Visitors noted that two weeks of compulsory EMS in the School's own small animal and equine hospitals is still required but that it will be phased out by 2013. The Visitors were pleased to hear this as compulsory EMS in University facilities is more accurately intra-mural study, or even an internal rotation. Notwithstanding this, EMS assessment forms from these hospitals were sometimes submitted late without any additional feedback. If external EMS providers are expected to complete assessments fully and in a timely manner, the University's clinics should lead by example.

14.5 One lecture is given to the students prior to clinical EMS and they are encouraged to complete the online "EMS Driving Licence" e-learning programme developed by the RVC and Edinburgh as preparation. On the whole, feedback on individual students from the EMS providers is timely and useful, but students appear to have been receiving little feedback via the School except when their performance has been reported to be very poor. However, the School has recognised some deficiencies in its systems and the evaluation of placements would appear to be improving with greater involvement of personal tutors introduced recently. It will be important that this continues to ensure that students receive guided support on setting their EMS learning objectives and monitoring their ongoing EMS learning needs.

14.6 Although written guidelines are provided for students on EMS, the documentation did not appear to include a clear procedure or contact details for students to use in the event of an unexpected emergency arising whilst on an EMS placement. Assurances were given that students can

contact a member of staff 24/7 if necessary, and that they are briefed before they attend EMS on what to do in an emergency. This should be reflected in the documentation.

Suggestions

14.7 It is suggested that additional time and resource is invested in ensuring that students are well prepared for EMS, particularly for clinical EMS, so that students are aware of their obligations, expected behaviour and how to get the most from their EMS placements including setting desired learning objectives.

Recommendations

14.8 The School should give priority to implementing the Student Experience Log as soon as this is available in order to integrate learning from EMS with the rest of the curriculum and ensure that tutors have an effective role in guiding students' learning from EMS. The School should ensure – either through the SEL or through other systems the School may develop to supplement it – that timely EMS assessments are captured and provide feedback to both students and EMS providers.

14.9 The School must provide and effectively publicise to students a 24-hour-per-day contact number to be used in the event of emergencies that may occur during EMS placements, and provide this with other instructions relating to EMS.

Stage 2 – Internal quality assurance systems

Faculties should have a policy and associated procedures for the assurance of the quality and standards of their programmes and awards. They should also commit themselves explicitly to the development of a culture which recognises the importance not only of quality, but also quality assurance. To achieve this, faculties must develop and implement a strategy for the continuous enhancement of quality. The strategy, policy and procedures should have a formal status and be publicly available. They should also include a role for students and other stakeholders. Hence a prerequisite for the status of an accredited institution will be the existence of a system of internal quality assurance that complies with the criteria set by the Standards and Guidelines for Quality Assurance in the European Higher Education Area established in 2005 by the European Association for Quality Assurance in Higher Education (ENQA, Helsinki, 2005) (*http://www.enqa.eu/documents.lasso*).

Findings

1. Policy statement

Bearing in mind, that postgraduate education and research are the basis for the advancement of veterinary science and hence have a great impact on undergraduate education, the Faculty must provide a clear policy and set of procedures for internal quality control and quality assurance of its teaching and research programme. The policy should have a formal status and be publicly available. It should also include a role for students and other stakeholders. The policy statement is expected to include the:

- relationship between teaching and research so that an established definition of research education and research quality is evident
- Faculty's strategy for quality and standards
- organisation of the quality assurance system
- responsibilities of organisational units and individuals for the assurance of quality
- involvement of students in quality assurance
- ways in which the policy is implemented, monitored and revised

Findings

1.1 The University works within the national policies and procedures for quality and standards set by the Quality Assurance Agency for all universities in the UK, which is in turn recognised at European level by the European Association for Higher Education in Europe (ENQA). As with other universities in the UK, the University also takes part in the periodic national assessment of its research performance through the Research Excellence Framework (REF) run by the Higher Education Funding Council for England (HEFCE).

1.2 As described in Chapter 2 (Organisation) above, the University is divided into three large Faculties. The School of Veterinary Sciences sits within the Faculty of Health and Life Sciences, alongside five research institutes and the Institute of Learning and Teaching. Research policy and strategy is developed at Faculty level with oversight by the University's Research Policy Team. There is a

commitment throughout to continue to improve both teaching, and the University's research performance.

1.3 The University's Student Experience Committee sets policy for the quality assurance of learning programmes, with each Faculty having its own Academic Quality and Standards Committee. The School is compliant with the University's quality assurance strategy. The School Board of Studies receives reports and recommendations from the BVSc Board and in turn reports decisions to Faculty level. There is also an Annual Subject Review process.

1.4 Students are represented on the School Board and most other committees.

1.5 The University's policies and procedures for its quality framework are publicly available on its website http://www.liv.ac.uk/tqsd/index.htm

Comments

1.6 The School has decided at this stage not to undergo a separate EAEVE visit to evaluate its compliance with stage 2 requirements, although it would appear to meet the general principles of quality assurance sufficient to meet current RCVS requirements. There is regular feedback from students on teaching through surveys and feedback questionnaires. However, there appears to be little systematic assessment of outcomes on a regular basis, eg. surveying graduates as to their preparedness for practice and surveying employers about the same thing.

Recommendations

1.7 The School should enhance its outcomes assessment procedures and processes.

2. Assessment of students, postgraduate education, and student welfare

Undergraduate education - admission of national and foreign students:
Enrolled students must be assessed regularly using published criteria, regulations and procedures which are applied consistently. Student assessment procedures are expected to:

- be designed to measure the achievement of the intended learning outcomes and other programme objectives, e.g. Day One Competences
- have clear and published criteria;
- where appropriate, not rely on the judgements of single examiners;
- results of assessment must be documented properly;
- be subject to administrative verification checks to ensure the accuracy of the procedures.
- in addition, students should be clearly informed about the assessment strategy being used for their programme, what examinations or other assessment methods they will be subject to, what will be expected of them, and the criteria that will be applied to the assessment of their performance.

Findings

2.1 Refer to Chapter 5 above for information about student assessment and welfare. The School has a thorough assessment system with clear criteria for progression and appropriate controls via its examination boards and use of external examiners.

Comments

2.2 Students would benefit from receiving more formative assessment, particularly in the early years of the course so that they are clear about the standards they are required to meet during summative assessments.

Recommendations

2.3 (As per Stage 1, Chapter 4 above) Formative assessment and feedback to students must be provided for all modules in the current curriculum as well as being built into the new curriculum, to that students are able to evaluate their progress toward achieving the required learning outcomes for every teaching module and clinic.

3. Assessment of teaching staff

Institutions should ensure that their teaching staff recruitment and appointment procedures include a means of ensuring that all new staff have at least the minimum necessary level of competence.

Teaching staff should be given opportunities to develop and extend their teaching capacity and should be encouraged to improve their skills. Opportunities for didactic and pedagogic training and specialisation should be available. The institution should describe any systems of reward for teaching excellence in operation.

A system for assessment of teaching staff must be in operation and should include student participation.

Findings

3.1 Veterinary-qualified members of staff are registered with RCVS, and must abide by the RCVS CPD policy to ensure their veterinary competence is maintained. CPD records for all veterinary members of staff were available and inspected during the visit.

3.2 All new academic staff are asked to complete a teaching qualification such as the Certificate in Professional Studies or the Postgraduate Certificate of Higher Education.

3.3 There is an annual "professional development review" (appraisal) for staff. The University identifies excellence in teaching through a series of annual awards, with many members of the veterinary school staff having received recognition in recent years. Following a pilot exercise, peer review of teaching is about to be introduced. The University is "seeking to develop" a career progression route for academic staff whose focus is solely on teaching, with promotion criteria including teaching quality, innovation and leadership. This had not yet been implemented at the time of the visit.

3.4 Students complete end-of-module reviews commenting on teaching quality. Final-year students contribute to the National Student Survey which evaluates the overall degree experience and satisfaction levels.

3.5 A Director of Student Experience was appointed in 2012 to take an overview of the student experience. Anonymous interviews and a "student-shadowing" exercise indicate a high level of student satisfaction.

Comments

3.6 There is an established culture of evaluation in the School. Students evidently value the commitment of staff and their ready availability to help with their learning.

Suggestions

None

4. Assessment of learning opportunities

The Faculty must provide proof of a quality assurance system that promotes and monitors the presence of an academic environment highly conducive to learning including self-learning. Type, provision and updating of appropriate learning opportunities for the students should be clearly described as well as the involvement of students. The institution should also describe how it manages the promotion of up to date facilities for supervised and self-studies and the promotion of lifelong-learning.

Findings

4.1 The University's approach to learning and teaching is covered by quality assurance policies already mentioned above. A system of 6-yearly Periodic Review is used to review the quality and standards of undergraduate and taught postgraduate programmes. The Student Experience Committee sets policy for quality assurance of learning programmes, and the Faculty Academic Quality Standards Committee is responsible for approval of new programmes and modules as well as considering annual subject review reports. An E-Learning Unit offers support to staff on the use of technology to enhance learning and teaching activity. The University supports independent learning and the development of students' study skills, for example through its interactive learning website which provides coaching in academic, digital learning and study skills.

4.2 The University's libraries provide facilities for independent learning and group work, including a 'social learning zone'. The new Veterinary Teaching Suite in Liverpool includes a clinical skills laboratory which students can use in their own time to practise skills. The use of personal development portfolios for students assists the promotion of self-study and reflection on achievement. The School's involvement with the provision of continuing professional development for the wider veterinary profession promotes lifelong learning generally.

Comments

4.3 The University has made a considerable investment in new facilities for the veterinary school which provide a suitable learning environment for students at both the Liverpool and Leahurst campuses.

Suggestions

None

5. Assessment of the training programme and the award of the title of veterinary surgeon

Assessment is expected to include:

- development and publication of explicit intended learning outcomes, including a description of essential competences required at graduation (the so-called “day one- skills”)
- procedures for formal curriculum and teaching programme approval and regular reviews
- procedures monitoring delivery of the curriculum and teaching programme
- assurance concerning the participation of students in quality assessment activities
- parameters assessed and procedures to monitor regular feedback from stakeholders and graduates
- provision of a structure that promotes life-long learning

Findings

5.1 The procedures for curriculum and teaching programme approval and review have been described above, as has the involvement of students in feedback and QA activity. Each module must have explicit learning outcomes, and all modules have been mapped to the RCVS Day One Competences.

Comments

5.2 The University’s systems for assessing, approving and monitoring programmes meet the requirements. However, as mentioned above, there appears to have been little systematic use of outcomes assessment or processes to monitor feedback from stakeholders and graduates.

Recommendations

5.3 (As per Chapter 1, Stage 2 above) The School should enhance its outcomes assessment procedures and processes.

6. Assessment of quality assurance systems for clinics, laboratories, and farm

The Faculty should describe the system(s) of quality assurance it possesses to monitor and assure clinical, laboratory and farm services.

Findings

6.1 The School's hospitals and practices are accredited by RCVS under the Practice Standards Scheme and received a full inspection visit in 2011. The Leahurst Equine Practice, Liverpool Small Animal Practice and the Farm Animal Practice are all accredited at RCVS Tier 2 (General Practice). The Small Animal Teaching Hospital and the Philip Leverhulme Equine Hospital are both accredited at RCVS Tier 3 (Hospital status).

6.2 The hospitals have a comprehensive QA process covering all aspects of clinical services, including standard operating procedures, performance monitoring against standards, systems for reporting and investigating complaints, regular morbidity and mortality reports and meetings, systems for collecting, recording and acting on client feedback. Wood Park Farm is recognised as a Tesco Dairy Centre of Excellence.

6.3 There are clear reporting lines for the farms, practices and hospitals through to the small animal division, equine division and livestock health and welfare division, reporting in turn to the School Senior Management Group. The Veterinary Pathology and Diagnostic Service also reports to the School Senior Management Group.

Comments

6.4 Visitors were unable to evaluate the quality assurance systems relating to laboratory services as no documentation was provided to this effect within the Stage 2 SER.

Suggestions

6.5 If the School wishes to apply for EAEVE Stage 2 accreditation in due course, more information will need to be provided to show how laboratory services are quality assured.

7. Assessment of continuing education

The Faculty should describe its system for quality assurance to monitor and promote the design, implementation and quality control of its own, or joint Continuing Professional Development (CPD) programmes in specific areas of practical veterinary medicine.

Findings

7.1 See Stage 1, Chapter 11, for information about the School's provision of CPD programmes. The credit bearing programmes are all approved and quality assured under the University's standard QA process for programmes. In addition, the School has been accredited by the RCVS to assess modules and synoptic assessments which are part of RCVS's Certificate in Advanced Veterinary Practice.

Comments

7.2 The School has a comprehensive system to quality assure its provision of continuing education programmes.

Suggestions

None

8. Assessment of research

The institution should describe its quality assurance systems to develop, maintain and audit research programmes. Of particular interest is how research provides opportunities for student training, staff promotion, and how research methods and results are conveyed into basic veterinary training.

Findings

8.1 As described earlier, veterinary research within the Faculty is undertaken in separate research institutes jointly with other medical and bioscience researchers. The institutes report to Faculty level, where there is a named individual responsible for the oversight of research. Faculty reports in turn to the University Research Policy Team.

8.2 The University is subject to periodic review at national level to evaluate the quality of research under the "Research Excellence Framework". The next review will be in 2014. Veterinary research will be included in the University's return under unit of assessment A6, agriculture, veterinary and food science.

8.3 All BVSc students undertake a research project as part of their undergraduate degree, resulting in a 4,000-word assessed dissertation; some students take an intercalated degree. The School also offers a number of vacation research scholarships providing students with eight to ten weeks undertaking a laboratory or data analysis project in a research environment.

8.4 Further details about research at Liverpool are provided above, Stage 1, Chapter 13.

Comments

8.4 Whilst, on the one hand, the organisational division between research institutes and teaching schools/institutes could be seen to strengthen the opportunities for research for veterinary researchers and postgraduates, on the other hand there is a risk that clinical research, which would primarily be undertaken under the auspices of the School, could be weakened over time.

Recommendations

8.5 (As per Stage 1, Chapter 13 above) The School should ensure that support for veterinary clinical research within the Faculty and School is not eroded so that it can continue to be the cornerstone of veterinary undergraduate teaching, as well as contributing to the advancement of the profession.

9. Assessment of internationalisation of education and research

The institution should describe how it promotes and assesses the development of international post-graduate education and of collaborative research projects with other countries, including developing countries.

Of particular importance is a description of the measures of encouragement applied to engage veterinary students and new graduates in international mobility of training (e.g. EU programmes such as Erasmus, Socrates, Tempus, Marie Curie etc) as well as the effectiveness of the activities.

Findings

9.1 The School participates in the European Erasmus programme of student exchanges. During the clinical rotations and electives students can undertake three months of study at a partner university. There are currently bilateral partnership agreements with Helsinki, Alfort (Paris) and Zurich. A partnership with Oslo is also about to be established. Five students completed exchanges in 2012, and eight will take part in 2013. One or two students per year are accepted under the Erasmus or Leonardo programmes from overseas universities.

9.2 In the 2011-12 academic year, the undergraduate student cohort included 17 students from other EU countries and six from non-EU countries. A substantial number of postgraduate students are from outside the UK.

Comments

9.3 The School's involvement with the Erasmus and other exchange programmes is somewhat limited and more could perhaps be done to encourage such exchanges of both staff and students.

Suggestions

9.4 The School is encouraged to consider expanding and/or promoting the opportunities for international student and staff exchange through Erasmus and other similar programmes.

10. Assessment of cooperation with stakeholders and society

The institution should provide proof that it regularly publishes up to date, objective and accurate information, both quantitative and qualitative, about the study programme. Published information might also include the views and employment destinations of past students and the profile of the current student population. This information should be readily accessible and should not be used simply as a marketing opportunity. The institution should describe to what extent it meets its own expectations.

Findings

10.1 The School and the various research institutes have a number of stakeholders – not only students and employers of graduates and EMS providers, but also the veterinary profession generally, national research organisations and companies such as Tesco. Staff from the University also provide advisory input to a wide range of regional, national and international organisations.

10.2 In common with other UK universities, data on student destinations six months after graduation are publicly available, and all other anonymised data are available under Freedom of Information Act. Statistics on the makeup of the student population are available publicly from the Higher Education Statistics Agency (HESA).

Comments

10.3 As the School does not appear to have undertaken any outcomes assessments, there did not appear to be any published information on the views of past students.

Annex 1 – Modules in the current Liverpool curriculum

	YEAR 1		
BVSC 600 Professional and Communication Skills (**Ms CA Gray**)	**Semester 1**	**Semester 2**	
	VETS 111 (7.5 credits) (**Dr E Laird**)	VETS 121 (15 credits) (**Dr L Iwajenko**)	
	Concepts in biochemistry and cell biology	Genetics and genomics	
	VETS 112 (15 credits) (**Dr IS Young**)	VETS 122 (15 credits) (**Dr T Thippeswamy**)	
	Introduction to systems physiology – cellular support	Limbs of the domestic animals	
	VETS 113 (15 credits) (**Dr S Tew**)	VETS 123 (7.5 credits) (**Ms C Gray**)	
	Body Systems 1	Body Systems 2	
	VETS 114 (15 credits) (**Dr CM Argo**)	VETS 124 (15 credits) (**Dr J Bro-Jorgensson**)	
	Animals in their environment	Whole animal design and function	
	VETS115 (7.5 credits) **(Dr L Pickavance)** Cells and Tissues	PHAR164 (7.5 credits) **(Dr NR Kitteringham)** Introduction to pharmacology	
	HACS and PCEMS (**Dr N McEwan/Ms F Penrose**)		
	YEAR 2		
	Semester 3	**Semester 4**	
	VETS 231 (15 credits) (**Professor SD Carter**)	VETS 241 (7.5 credits) (**Dr LC Pickavance**)	VETS 245 (7.5 credits) (**Dr PJ Cripps**)
	Molecular and cellular basis of disease	Integrative & applied veterinary biology	Introduction to veterinary epidemiology
	VETS 232 (15 credits) (**Dr KSH Salmon**)	VETS 242 (15 credits) (**Dr R Barrett-Jolley)**	
	Gastrointestinal tract	Neuroscience and neuropharmacology	
	VETS 233 (15 credits) (**Mrs F Penrose**)	VETS 243 (15 credits) (**Dr IS Young**)	
	Functional Anatomy of the Head	Diverse Species	
	VETS 234 (15 credits) (**Dr CM Argo)**	VETS 244 (15 credits) (**Ms M Hannigan**)	
	Reproduction	Animal maintenance	
	PCEMS (**Ms F Penrose**)		
	YEAR 3		
	Semester 5	**Semester 6**	
	VETS 351 (15 credits) (**Dr N Williams**)	VETS 361 (7.5 credits) (**Dr K Ganapathy**)	
	Infectious diseases I	Infectious diseases II	
	VETS 352 (22.5 credits) (**Professor DJL Williams**)	VETS 362 (15 credits) (**Dr A Freeman**)	
	Veterinary parasitic diseases	Research project and dissertation	
	VETS 353 (15 credits) (**Dr J Chantrey**)	VETS 363 (15 credits) (**Dr L Roussel**)	
	Pathology I	Pathology II	
	VETS 354 (15 credits) (**Dr PH Jones)**	VETS 364 (15 credits) (**Dr E Michalopoulou**)	
	Veterinary epidemiology and public health I	Veterinary epidemiology and public health II	

	Clinical EMS (**Dr RD Murray**)		
	YEARS 4 & 5		
	Year 4	**Year 5**	
	Clinical theory course (BVSC410) comprising:	Clinical rotations (BVSC520) comprising:	
	BVSC448 Livestock Health & Welfare (**Dr J Duncan**))	BVSC548 Livestock Health & Welfare (**Dr J Duncan**))	
	BVSC458 Equine Studies (**Dr ER Singer**))	BVSC558 Equine Studies (**Dr ER Singer**))	
	BVSC468 Small Animal Studies (**Dr N McEwan**)	BVSC568 Small Animal Studies (**Dr N McEwan**)	
	Clinical rotations (BVSC420)	Electives (BVSC530) (**Dr R Goncalves**)	
	Clinical EMS (**Dr RD Murray**)		

Vets 111 – ***Concepts in biochemistry and cell biology***. Covers relevant topics in protein, carbohydrate and lipid function and metabolism, nitrogen metabolism and cell signalling.
Vets 112 – ***Introduction to systems physiology – cellular support***. Covers cell structure and function, homeostasis and nerve/muscle tissues.
Vets 113 – ***Body systems 1***. Covers basic embryology, peripheral nervous system, cardiovascular and respiratory systems.
Vets 114 – ***Animals in their environment***. Covers agriculture as an industry, animal growth and production, nutrition and feeding.
Vets 115 – ***Cells and tissues***. Covers basic tissue types, use of microscope.
Vets 121 – ***Genetics and genomics***. Covers genome structure, nucleic acid structure, pedigrees, breeding programmes, recombinant DNA technology and polymerase chain reactions.
Vets 122 – ***Limbs of the domestic animals***. Covers skeleton and joint gross anatomy, normal locomotion, limb development and functional diversity.
Vets 123 – ***Body systems 2***. Covers excretory and endocrine systems, and structures of the thorax.
Vets 124 – ***Whole animal design and function***. Covers evolution, behaviour, welfare and quantitative genetics.
Phar 164 – ***Introduction to pharmacology***. Covers the study of pharmacology and drug development, pharmacokinetics and the role of drug receptors.
Vets 231 – ***Molecular and cellular basis of disease***. Covers immunology, mechanisms of tissue injury, response to injury, mechanism of action of NSAID and glucocorticoid drugs, use of laboratory results including biochemical tests to assess organ and system function.
Vets 232 – ***Gastrointestinal biology***. Covers embryology, anatomy and physiology of gastro-intestinal tract.
Vets 233 – ***Functional anatomy of the head and axial skeleton.*** Covers anatomy and physiology of head, axial skeleton and special senses.
Vets 234 – ***Reproduction***. Covers control of reproduction in males and females, assessment of reproductive capacity and dealing with sub-fertility.
Vets 241 – ***Integrative and applied veterinary biology***. Covers application of knowledge from basic scientific principles, using scientific research.
Vets 242 – ***Neuroscience and neuropharmacology***. Covers structure of brain, special senses, neurological basis of behaviour, learning, memory and development of animal brain, and pharmacology of drugs used on nervous system.
Vets 243 – ***Diverse species***. Covers anatomy, physiology and husbandry of fish, birds, reptiles and amphibians.

Vets 244 – ***Animal maintenance***. Covers production systems, farm and companion animals, feeding, housing and production capacity.
Vets 245 – ***Introduction to veterinary epidemiology***. Covers epidemiological measures and how to conduct studies, statistics.
Vets 351 – ***Infectious diseases 1***. Covers structure and diversity of bacteria, viruses and fungi, host-pathogen interaction and pathogenesis, microbial disease ecology, diagnosis and control of infections.
Vets 352 – ***Veterinary parasitic diseases***. Covers causes and diagnosis of parasitic disease, life cycles and epidemiology of significant parasites, antiparasitic drugs and resistance, and parasitic zoonoses.
Vets 353 – ***Pathology 1***. Covers disease at a cellular, tissue and organ level, disordered tissue growth, haematology and diseases of the skin, cardiovascular, respiratory and alimentary systems.
Vets 354 – ***Veterinary epidemiology and public health 1.*** Covers application of epidemiology to human and animal diseases, legislation controlling food production and environmental protection and principles of risk analysis applied to the food chain.
Vets 361 – ***Infectious diseases 2***. Covers major infectious diseases of small animals, horses and birds, including diagnostic features, laboratory diagnostic methods and control via treatment, vaccination and eradication.
Vets 362 – ***Research project and dissertation***. Covers development of skills in project design, use of scientific literature and scientific writing.
Vets 363 – ***Pathology 2***. Covers development of problem-solving skills in post-mortem examination, description and interpretation of findings and use of laboratory data; diseases of the liver and pancreas; urinary, reproductive, nervous, locomotor and endocrine systems; and special senses.
Vets 364 – ***Veterinary epidemiology and public health 2***. Covers basic concepts in food hygiene, common lesions and problems found in abattoir, application of epidemiology and risk analysis to problem solving in animal and human disease, and contribution (as part of a multidisciplinary team) to human health.
BVSC600 – *Professional and communication skills.* Covers professional ethics, personal learning techniques, clinical communication skills, dealing with difficult situations.
BVSC410 – *Clinical theory.* Covers common disease conditions of equine, farm animal and small animal species.
BVSC420, BVSC520 – *Clinical rotations.* Covers 24 rotation weeks undertaken in farm animal, small animal, equine and miscellaneous divisions.

Annex 2 – EAEVE ratios

Ratios based on EAEVE requirements, amended following the visit based on revised information provided by the School.

		Denominator
R1	no. total academic FTE in veterinary training / no. undergraduate veterinary students = 112.3 / 608 = 1 / 0.185	5.4
R2	no. of total FTE at Faculty / no. undergraduate students at Faculty = 112.3 / 714 = 1 / 0.16	6.25
R3	no. total VS FTE in veterinary training / no. undergraduate veterinary students = 103.4 / 608 = 1 / 0.17	5.88
R4	no. total VS FTE in veterinary training / no. students graduating annually = 103.4 / 109 = 1 / 0.95	1.05
R5	no. total FTE academic staff in veterinary training / no. total FTE support staff in veterinary training = 103.4 / 144.8 = 1 / 0.71	1.41
R6	Theoretical training (A + B + C) / Supervised practical training (D + E + F) = (1562 + 260 + 2554.5) / (366 + 111 + 1006) = 4377.5 / 1483 = 1 / 2,8	0.36
R7	Clinical work (F) / Laboratory and desk-based work + non-clinical animal work (D + E) = 1006 / 477 = 1 / 2,11	0.47
R8	Self directed learning (C) / Teaching load (A+B+C+D+E+F+G) = 2554.5 / 5900.5 = 1 / 0.43	2.33
R9	Total curriculum hours food hygiene/public health / Total # hours of vet curriculum = 300 / 5900.5 = 1 / 0.05	20
R10	Total curriculum hours food hygiene/public health / Hours obligatory extramural work in veterinary inspection = 300 / 35 = 1 / 8.57	0.12

R11	no. of students graduating annually / no. of food-producing animals seen at Faculty = 109/257 = 1/2.35	2.35
R12	no. of students graduating annually / no. of individual food-animals consultations outside the Faculty[2) 3)] = 109/11462 = 1/105	105
R 13	no. of students graduating annually / number of herd health visits = 109/1821 = 1/16.7	16.7
R 14	no. of students graduating annually / no. of equine cases = 109/5554 = 1/51	51
R 15	no. of students graduating annually / no. of poultry/rabbit cases = 109/184 = 1/1.7	1.7
R 16	no. of students graduating annually / no. of companion animals seen at Faculty = 109/24876 = 1/228	228
R 17	no. of students graduating annually[a)] / Poultry (flocks)/rabbits seen = 109/9 = 1/0.8	0.8
R 18	no. of students graduating annually / no. necropsies food producing animals + equines = 109/295 = 1/2.71	2.71
R 19	no. of students graduating annually / no. poultry/rabbits = 109/168 = 1/1.54	1.54
R 20	no. of students graduating annually / necropsies companion animals = 109/354 = 1/3.25	3.25

Annex 3 – Academic staff list

Position	Incumbent
Head of School	Professor Susan Dawson, BVMS PhD MRCVS
School Administrator	Mrs Rachael Atkins, BA (Hons) PGDip
Head of Small Animal Division	Professor Laura Blackwood, BVMS PhD MVM CertVR DipECVIM-CA (Onc) MRCVS
Head of Equine Division/School Finance Lead	Mr Peter Bowling, BSc BVSc MRCVS
Head of Livestock, Health & Welfare and Farms Division	Dr Dai Grove-White**,** BVSc MSc PhD FRCVS
Head of Veterinary Pathology	Professor Anja Kipar, Dr.med.vet.habil DiplECVP, MRCVS
Head of Veterinary Public Health	Professor Jim Scudamore, BVSc BSc DipECVPH MRCVS
School Research Lead	Professor Peter Clegg, MA VetMB PhD CertES DipEVCS MRCVS
Head of Infection Biology	Professor Jonathan Wastling, BSc PhD CBiol MIBiol
Head of Epidemiology & Population Health	Professor Matthew Baylis, BA DPhil (Oxon)
Head of Musculoskeletal Biology I	Professor John Innes, BVSc PhD CertVR DSAS(Orth) MRCVS
BVSc Programme Director	Ms Carol Gray, BVMS MRCVS
Director of Admissions and Disability Support Officer	Dr Kieron Salmon, BVSc PhD MRCVS
Director of Student Experience	Ms Margaret Hannigan, BSc MSc PGCE
Director of CPD	Dr Cathy McGowan, BVSc MACVSc PhD DEIM DipECEIM MRCVS FHEA
Assessment Officer	Dr Tim Nuttall, BSc BVSc CertVD PhD CBiol MSB MRCVS
Senior Tutor	Dr Richard Barrett-Jolley, BSc (Hons) DPhil (Oxon) FHEA FBPharmacolS
Senior Tutor	Ms Avril Senior, BVSc, MRCVS
Head Vet (Equine Practice)	Mrs Angela Holland, BVSc BSc,CertAVP(EP) MRCVS
Head Vet (Farm Animal Practice)	Mrs Jo Oultram, BVSc CertCHP MRCVS

Head Vet (Farm Animal Practice)	Miss Helen Williams, BVSc CertCHP MRCVS	
Head Vet (Small Animal Practice)	Mrs Katherine Linney, BVSc MRCVS	
Farm Manager (Ness Heath)	Mr Nigel Jones, BSc	
Farm Manager (Wood Park)	Mr John Cameron, OND HNC	
Site Manager (Leahurst)	Mrs Jean Wheeler, C.Biol M.I.Biol	
Site Manager (Liverpool)	Mr James Trafford, IMLS	
School of Veterinary Science/Veterinary Education		
Senior Lecturer (Veterinary Education)	Dr Camille Vaillant	
Director of Student Experience	Ms Margaret Hannigan	
Lecturer (Communication Skills) and BVSc Programme Director	Ms Carol Gray	MRCVS
Lecturer (Veterinary Biology)	Ms Fay Penrose	
Lecturer (Veterinary Biology & Clinical Skills)	Dr Kieron Salmon	MRCVS
Senior clinical tutor/E-learning manager and PDR co-ordinator	Mrs Avril Senior	
Technical Staff		
IT Support Officer	Mr Denis Duret	
Technical Manager	Mr James Trafford	
Technical Manager	Mrs Jean Wheeler	
Technician (Diagnostic)	Mr David Cleary	
Technician (Diagnostic)	Ms Susan Quinn	
Technician (Diagnostic)	Mr Peter Taylor	
Technician (Handyman)	Mr Anthony Southall	
Technician (IT)	Mr Alan Bannister	
Technician (IT)	Mr Paul Blackhurst	
Technician (IT)	Mr Robert Pearson	
Technician (IT)	Miss Elizabeth Rees	
Technician (Services)	Mrs Gill Hutchinson	
Technician (Teaching)	Mr Gerard Gilligan	
Technician (Teaching)	Mr Paul Gilmore	
Technician (Teaching)	Mr Ben Jones	
Technician (Teaching)	Mr Michael Jones	
Technician (Teaching)	Mr Lee Moore	
Technician (Teaching)	Mr Alan Roberts	
Technician (Teaching)	Mrs Jean Routly	
Clerical/Administrative Staff		
School Administrator	Mrs Rachael Atkins	
PA to the Head of School/ Management Services & Student Administrator	Mrs Sylvia Yang	
Admin Assistant (CPD)	Miss Nicky Chambers	
Admin Assistant (CPD)	Mr Andrew Shields	
Admin Assistant (CPD)	Miss Charlie Whelan	
Admin Assistant (EMS)	Mrs Anne Mulville	

Admin Assistant (EMS)	Mrs Helen Shelley	
Administrator (Admissions)	Miss Vivien Jump	
Administrator (CPD)	Mrs Gill Beckett	
Administrator (CPD)	Miss Jennie Daulby	
Administrator (Finance)	Mrs Elsie Doyle	
Administrator (Finance)	Mrs Jane Hart	
Administrator (Student Experience)	Ms Helen Barry	
Administrator (Student Experience)	Mrs Chris Broadbent	
Administrator (Student Experience)	Mrs Julie Fitzsimmons	
Administrator (Student Experience)	Mrs Pauline Redmond	
Administrator (Student Experience)	Mrs Karen Wood	
Administrator (Student Experience)	Mrs Nicky Wylie	
Administrator (Student Experience)	Miss Judi Young	
Administrator (Student Experience)	Vacant position	
Administrator (Student Experience)	Vacant position	
Administrator (Student Experience/Management Services)	Mrs Gill Barker	
Finance Co-ordinator	Ms Clare Kenny	
Receptionist	Mrs Ruth Harvey	
Equine Division		
Head of Equine Division	Mr Peter Bowling	MRCVS
Professor of Equine Medicine	Professor Derek Knottenbelt	MRCVS
Professor of Equine Orthopaedics	Professor Peter Clegg	MRCVS
Professor of Equine Studies	Professor Christopher Proudman	MRCVS
Senior Lecturer (Equine Division)/Director of CPD	Dr Cathy McGowan	MRCVS
Senior Lecturer (Equine Orthopaedics)	Dr Ellen Singer	MRCVS
Senior Lecturer (Equine Reproduction & Animal Science)	Dr Caroline Argo	MRCVS
Senior Lecturer (Equine Surgery)	Dr Debbie Archer	MRCVS
Lecturer (Equine Medicine)	Mr Fernando Malalana-Martinez	MRCVS
Lecturer (Equine Orthopaedics)	Dr Peter Milner	MRCVS
Lecturer (Equine Orthopaedics)	Miss Alison Talbot	MRCVS
Lecturer (Equine Practice)	Mr Sam Bescoby	MRCVS
Lecturer (Equine Practice)	Mrs Sarah Gasper	MRCVS
Lecturer (Equine Practice)	Mrs Angela Holland	MRCVS
Lecturer (Equine Practice)	Miss Dale Hughes	MRCVS
Lecturer (Equine Practice)	Miss Rebecca Kent	MRCVS
Lecturer (Equine Surgery)	Mr Neil Townsend	MRCVS
Lecturer (Veterinary Anaesthesia)	Mr David Bardell	MRCVS
Lecturer (Veterinary Anaesthesia)	Mr Carl Bradbrook	MRCVS
Resident	Mr Matthew De Bont	MRCVS
Resident	Miss Judith Findley	MRCVS
Resident	Mr Simon Hennessy	MRCVS
Resident	Miss Sarah Mack	MRCVS
Intern (Equine)	Miss Kirsty Barron	MRCVS
Intern (Equine)	Miss Rachel Burgess	MRCVS
Intern (Equine)	Mr James Horner	MRCVS

Intern (Equine)	Mr Alexander Young	MRCVS
Technical Staff		
IT Support Officer	Mr Philip Stratford	
Nurse (Auxilliary)	Miss Keri Hunt	
Nurse (Auxilliary)	Miss Claire Magee	
Nurse	Mrs Sarah Clark	
Nurse	Ms Elizabeth Grieve	
Nurse	Mrs Susan Littler	
Technician (Animal)	Miss Zoe Hill	
Technician (Animal)	Mrs Rachel Hirst	
Technician (Animal)	Mr Anthony Jopson	
Technician (Animal)	Miss Jennifer Knight	
Technician (Animal)	Miss Sophie Neil	
Technician (Animal)	Miss Leanne Robinson	
Technician (Animal)	Miss Anna Sharp	
Technician (Animal)	Ms Jayne Tansey	
Technician (Facilities)	Ms Helen Braid	
IT Support Officer	Mr David Richardson	
Technician (Services)	Mrs Buddhini Bandara Athauda	
Technician (Services)	Mr Mark Dowling	
Technician (Services)	Mr John Kane	
Technician (Services)	Miss Fiona Thompson	
Clerical/Administrative Staff		
Senior Clinical Services Manager	Mrs Trish Gill	
Clinical Services Manager	Miss Lisa Beaudoin	
Admin Assistant	Mrs Adele Benbow	
Admin Assistant	Mrs Janet Smith	
Admin Assistant	Ms Denise Thomas	
Admin Assistant (Services)	Miss Jenny Walker	
Client Services (Finance)	Mrs Jane Barnes	
Client Services (Finance)	Mrs Janet Rae	
Client Services (Receptionist)	Miss Claire Burdett	
Client Services (Receptionist)	Miss Sally Burgess	
Client Services (Receptionist)	Mrs Lorraine Robinson	
Practice Manager	Miss Nicky Clarke	
Practice Administrator	Mrs Siobhan Whitehead	
Practice Administrator	Mrs Jane Wilson	
Livestock, Health & Welfare and Farms		
Senior Lecturer (Animal Science)	Dr Mel Royal	
Senior Lecturer (Epidemiology)	Dr Peter Cripps	MRCVS
Senior Lecturer (Livestock, Health & Welfare)	Dr Dai Grove-White	MRCVS
Senior Lecturer (Livestock, Health & Welfare)	Dr Richard Murray	MRCVS
Senior Lecturer (Livestock, Health & Welfare)	Dr Rob Smith	MRCVS
Lecturer (Farm Animal Practice)	Mrs Jo Oultram	MRCVS
Lecturer (Farm Animal Practice)	Miss Helen Williams	MRCVS
Lecturer (Livestock, Health & Welfare)	Dr Jennifer Duncan	MRCVS
Lecturer (Livestock, Health & Welfare)	Dr Jan Van Dijk	MRCVS

Lecturer (Livestock, Health & Welfare)	Miss Amy Holman	MRCVS
Resident	Miss Amy Gillespie	MRCVS
Resident (Farm Animal Practice)	Miss Lorien Waterer	MRCVS
Intern	Ms Nicole Fisher	MRCVS
Technical Staff		
Farm Manager (Ness Heath)	Mr Nigel Jones	
Farm Manager (Wood Park)	Mr John Cameron	
Deputy Farm Manager (Wood Park)	Mr Andrew Parkinson	
Herdsman	Mr Alistair Tollett	
Technician (Animal)	Mrs Amanda Dennis	
Technician (Animal)	Mr Ray Ellis	
Technician (Animal)	Mr Jason Mutch	
Technician (Animal)	Mr Gary Prance	
Technician (Teaching)	Mrs Catherine Astbury	
Technician (Teaching)	Mrs Rachel Atkinson	
Technician (Teaching)	Mrs Johanna Sutherst	
Small Animal Division		
Professor of Small Animal Oncology & Head of Small Animal Division	Professor Laura Blackwood	MRCVS
Professor of Small Animal Studies and Head of Department (Musculoskeletal Biology)	Professor John Innes	MRCVS
Royal Canin Senior Lecturer (Small Animal Medicine & Clinical Nutrition)	Dr Alex German	MRCVS
Senior Lecturer (Small Animal Neurology)	Miss Rita Goncalves	MRCVS
Senior Lecturer (Small Animal Orthopaedics)	Dr Eithne Comerford	MRCVS
Senior Lecturer (Veterinary Anaesthesia)	Dr Alex Dugdale	MRCVS
Senior Lecturer (Veterinary Cardiology)	Dr Joanna Dukes-McEwan	MRCVS
Senior Lecturer (Veterinary Dermatology)	Dr Neil McEwan	MRCVS
Senior Lecturer (Veterinary Dermatology)	Dr Tim Nuttall	MRCVS
Senior Lecturer (Veterinary Diagnostic Imaging)	Mr Fraser McConnell	MRCVS
Lecturer (Internal Medicine)	Dr Dan Batchelor	MRCVS
Lecturer (Internal Medicine)	Miss Aran Mas	MRCVS
Lecturer (Oncology)	Mr James Elliott	MRCVS
Lecturer (Orthopaedics)	Mr Henrique da Silva	MRCVS
Lecturer (Orthopaedics)	Mr Ben Walton	MRCVS
Lecturer (Small Animal Cardiology)	Mrs Hannah Stephenson	MRCVS
Lecturer (Small Animal Diagnostic Imaging)	Ms Annette Kerins	MRCVS
Lecturer (Small Animal Diagnostic Imaging)	Ms Susannah Lillis	MRCVS
Lecturer (Small Animal Internal Medicine)	Mr Peter-John Noble	MRCVS
Lecturer (Small Animal Oncology)	Mrs Mary Marrington	MRCVS
Lecturer (Small Animal Orthopaedics)	Mr Rob Pettitt	MRCVS
Lecturer (Small Animal Soft Tissue Surgery)	Miss Rachel Burrow	MRCVS
Lecturer (Small Animal Soft Tissue Surgery)	Dr Alistair Freeman	MRCVS
Lecturer (Small Animal Veterinary Anaesthesia)	Miss Briony Alderson	MRCVS
Lecturer (Veterinary Anaesthesia)	Ms Ellie West	MRCVS
Head Veterinary Surgeon (Primary Care)	Mrs Katherine Linney	MRCVS
Veterinary Surgeon (Primary Care)	Mrs Sarah Batchelor	MRCVS
Veterinary Surgeon (Primary Care)	Mr Anthony Buxton	MRCVS

Veterinary Surgeon (Primary Care)	Mrs Amy Leather	MRCVS
Resident (Cardiology)	Ms Bridgette Pedro	MRCVS
Resident (Small Animal Cardiology)	Mr Chris Linney	MRCVS
Resident (Small Animal Diagnostic Imaging)	Mr Luis Mesquita	MRCVS
Resident (Small Animal Internal Medicine)	Mr Kevin Murtagh	MRCVS
Resident (Small Animal Internal Medicine)	Miss Mary Trehy	MRCVS
Resident (Small Animal Neurology)	Miss Erika Bersan	MRCVS
Resident (Small Animal Oncology)	Miss Isabel Amores-Fuster	MRCVS
Resident (Small Animal Oncology)	Dr Riccardo Finotello	MRCVS
Resident (Small Animal Clinical Cardiology)	Dr Elisabetta Treggiari	MRCVS
Resident (Small Animal Surgery)	Miss Kate Forster	MRCVS
Resident (Small Animal Surgery)	Dr Nina Lorenz	MRCVS
Resident (Small Animal Surgery)	Mr Brandan Wustefeld-Janssens	MRCVS
Resident (Veterinary Anaesthesia)	Miss Katherine Robson	MRCVS
Resident (Veterinary Anaesthesia)	Mrs Kate Thompson	MRCVS
Resident (Veterinary Dermatology)	Miss Laura Buckley	MRCVS
Resident (Veterinary Diagnostic Imaging)	Dr Tom Maddox	MRCVS
Resident (Veterinary Oncology)	Dr Sarah Mason	MRCVS
Intern (Anaesthesia)	Miss Maja Drozdrynska	MRCVS
Intern (Anaesthesia)	Miss Rebecca Smith	MRCVS
Intern (Anaesthesia)	Ms Aurora Zoff	MRCVS
Intern (Small Animal Studies)	Miss Judith Bradbury	MRCVS
Intern (Small Animal Studies)	Miss Camilla Cooper	MRCVS
Intern (Small Animal Studies)	Ms Ana Serras	MRCVS
Intern (Small Animal Studies)	Ms Andrea Wahle	MRCVS
Technical Staff		
Head Nurse	Ms Rachel Rankin	
Head Theatre Nurse	Ms Louise Purchase	
Senior Medical Nurse	Ms Elizabeth Sweeney	
Nurse	Miss Louise Hutchins	
Nurse	Mrs Nancy Taylor	
Nurse	Miss Gemma Wall	
Nurse (Auxillary)	Mr John Blagbrough	
Nurse (Auxillary)	Ms Joan Critchley	
Nurse (Auxillary)	Mrs Pamela Heron	
Nurse (Auxillary)	Mrs Julia Marsden	
Nurse (Auxillary)	Mrs Carol Mills	
Nurse (Dermatology)	Ms Clara McFarlane	
Nurse (Imaging)	Miss Alisa Dean	
Nurse (Internal Medicine)	Miss Stephanie Worsley	
Nurse (Neurological)	Miss Lucy Burrows	
Nurse (Oncology)	Miss Heidi O'Toole	
Nurse (Oncology)	Mrs Josephine Jones	
Nurse (Orthopaedics)	Ms Tracy Maffitt	
Nurse (Pharmacy)	Mrs Paula Wynne	
Nurse (Primary Care)	Mrs Rachael Jones	
Nurse (Primary Care)	Miss Helen Parrish	
Nurse (Soft Tissue)	Miss Lucy Gott	

Nurse (Surgical)	Miss Anna Reeves	
Nurse (Surgical)	Mrs Claire Rynberk	
Nurse (Surgical)	Mrs Zerelda Wustefeld-Janssens	
Nurse (Ward)	Miss Sarah Charlton	
Nurse (Ward)	Miss Liza Ebeck	
Nurse (Ward)	Miss Natalie Greenhalgh	
Nurse (Ward)	Miss Francesca Pleavin	
Nurse (Ward)	Miss Victoria Smyth	
Radiographer	Mr Martin Baker	
Radiographer	Miss Tracy Graham	
Technician (Theatre)	Mrs Shelagh Roberts	
Clerical/Administrative Staff		
Senior Hospital Administrator	Mr Sam Kennedy	
Assistant Client Services Manager	Mr Phil Wood	
Admin Support	Mr Nicholas Dath	
Admin Support	Miss Sharon Duckers	
Admin Support	Mrs Ruth Hardy	
Admin Support	Miss Gaynor Lloyd	
Admin Support	Ms Niki McKeown	
Admin Support	Mr Gareth Quinn	
Admin Support	Ms Cara Slowey	
Admin Support	Mrs Susan Ward	
Client Services (Appointments Clerk)	Mrs Susan Cawsey	
Client Services (Appointments Clerk)	Mrs Joan Toohey	
Client Services (Administrator)	Ms Teresa Dake	
Client Services (Finance)	Ms Hannah Wilkinson	
Small Animal Division Clerical/Administrative Staff (continued)		
Client Services (Procurement)	Mrs Elizabeth Bygrave	
Client Services (Receptionist)	Miss Claire Davies	
Practice Manager	Mrs Jane Chance	
Secretary	Mss Sally Lacey	
Epidemiology & Population Health		
Professor of Epidemiology and Head of Department	Professor Matthew Baylis	
Professor of Veterinary Science and Head of School	Professor Susan Dawson	MRCVS
Professor of Epidemiology	Professor Peter Diggle	
Professor of Epidemiology	Professor Kenton Morgan	MRCVS
Professor of Epidemiology/Public Health	Professor Sarah O'Brien	
Professor of Veterinary Pathology	Professor Malcolm Bennett	MRCVS
Reader (Epidemiology)	Dr Rob Christley	MRCVS
Senior Lecturer (Epidemiology)	Dr Gina Pinchbeck	MRCVS
Senior Lecturer (Epidemiology)	Dr Nicola Williams	
Lecturer (Epidemiology)	Dr Sophia Latham	
Lecturer (Epidemiology)	Dr Jonathan Read	
Clerical/Administrative Staff		
Admin Support (Research)	Mrs Jenny Brown	

Admin Support (Research)	Mrs Angela Cucchi	
Admin Support (Research)	Dr Caroline Harcourt	
Admin Support (Research)	Ms Kathryn Jackson	
Admin Support (Research)	Mrs Sue McCall	
Admin Support (Research)	Ms Janis Paine	
Infection Biology		
Professor of Proteomics and Head of Dept	Professor Jonathan Wastling	
Professor of Food Safety & Science	Professor Tom Humphrey	
Professor of Infection Biology	Professor Stuart Carter	
Professor of Infection Biology	Professor James Stewart	
Professor of Infection Biology (Small Animal)	Professor Rosalind Gaskell	MRCVS
Professor of Veterinary Parasitology	Professor Diana Williams	
Reader (Infection Biology)	Dr Zerai Woldehiwet	MRCVS
Reader (Infection Biology (Poultry))	Dr Paul Wigley	
Senior Lecturer (Infection Biology (Poultry))	Dr Clive Naylor	
Senior Lecturer (Infection Biology (Small Animal))	Dr Alan Radford	MRCVS
Senior Lecturer (Infection Biology/Veterinary Anaesthesia)	Dr Mark Senior	MRCVS
Senior Lecturer (Veterinary Pathology)	Dr Jane Hodgkinson	
Lecturer (Infection Biology)	Dr Nicholas Evans	
Lecturer (Infection Biology)	Dr Andrew Jackson	
Lecturer (Infection Biology (Poultry))	Dr Kannan Ganapathy	MRCVS
Lecturer in Veterinary Parasitology	Dr John McGarry	
Technical Staff		
Technical Supervisor (Research)	Ms Janet Harries	
Technician (Research)	Ms Erin Coulter	
Technician (Research)	Mrs Cynthia Dare	
Technician (Research)	Mrs Anne Forrester	
Technician (Research)	Mrs Catherine Glover	
Technician (Research)	Ms Catherine Hartley	
Technician (Research)	Dr Trevor Jones	
Technician (Research)	Mrs Ruth Ryvar	
Technician (Research)	Dr Christine Yavari	
Clerical/Administrative Staff		
Admin Support (Research)	Miss Jill Hudson	
Admin Support (Research)	Mrs Jackie Lee	
Admin Support (Research)	Miss Adele Maggs	
Integrative Biology		
Professor of Animal Science	Professor Jane Hurst	
Professor of Integrative Biology	Professor Soraya Shirazi-Beechey	
Reader (Mammalian Behaviour & Evolution)	Dr Paula Stockley	
Senior Lecturer (Integrative Biology)	Dr Iain Young	
Lecturer (Integrative Biology)	Dr Andy Jones	
Research Fellow (Mammalian Behaviour & Evolution)	Dr Jakob Bro-Jorgensen	
Technical Staff		
Technician (Animal)	Mrs Susan Jopson	

Technician (Animal)	Mr John Waters	
Technician (Research)	Mr Josh Beeston	
Technician (Research)	Miss Amanda Davidson	
Technician (Research)	Miss Rachel Spencer	
Musculoskeletal Biology I		
Senior Lecturer (Musculoskeletal Biology)	Dr Swamy Thippeswamy	
Senior Lecturer (Veterinary Neuroscience & Neuropharmacology) and Senior Tutor	Dr Richard Barrett-Jolley	
Lecturer (Molecular Biology)	Dr Lesley Iwanejko	
Lecturer (Musculoskeletal Biology)	Dr Elizabeth Laird	
Lecturer (Musculoskeletal Biology)	Dr Simon Tew	
Lecturer (Obesity & Endocrinology)	Dr Lucy Pickavance	
Technical Staff		
Technician (Research)	Mr David Jones	
Clerical/Administrative Staff		
Admin support (Research)	Ms Diane Ashton	
Admin support (Research)	Ms Alison Beamond	
Veterinary Pathology and Public Health		
Professor of Veterinary Pathology/Head of Division (Veterinary Pathology)	Professor Anja Kipar	
Professor of Veterinary Public Health & Head of Division	Professor Jim Scudamore	MRCVS
Senior Lecturer (Veterinary Pathology)	Dr Julian Chantrey	MRCVS
Lecturer (Diagnostic Bacteriology)	Dr Dorina Timofte	MRCVS
Lecturer (Epidemiology/Public Health)	Dr Philip Jones	MRCVS
Lecturer (Public Health)	Dr Eleni Michalopoulou	MRCVS
Lecturer (Public Health)	Miss Rita Papoula Pereira	MRCVS
Lecturer (Public Health (Veterinary Surveillance))	Miss Ann Courtenay	MRCVS
Lecturer (Veterinary Pathology)	Dr Richard Blundell	MRCVS
Lecturer (Veterinary Pathology)	Dr Gail Leeming	MRCVS
Lecturer (Veterinary Pathology)	Dr Lorenzo Ressel	MRCVS
Lecturer (Veterinary Pathology)	Dr Emanuele Ricci	MRCVS
Resident (Veterinary Pathology)	Miss Alex Malbon	MRCVS
Resident (Veterinary Pathology)	Mr Georgios Nikolaou	MRCVS
Resident (Veterinary Pathology)	Dr Teodore Soare	MRCVS
Technical Staff		
Technical Supervisor	Mr Anthony Brandwood	
Technician (Diagnostic)	Miss Jennifer Fick	
Technician (Diagnostic)	Mr Andrew Wattrett	
Technician (Diagnostic)	Mr Sean Williams	
Technician (Electron Microscopist)	Miss Marion Pope	
Technician (Mortuary)	Miss Hollie Oakley	
Technician (Mortuary)	Mrs Helen Smith	
Technician (Services)	Mr Adam Bertram	
Technician (Services)	Ms Shirley Smith	
Technician (Services)	Miss Valerie Tilston	

Clerical/Administrative Staff		
Administrator	Mrs Jeanette Hughes	
Administrator (VLS)	Mrs Carolynne Graham	
Administrator (VLS)	Mrs Emma Rygielska	

Annex 4 – Timetable for the visit

Sunday 18 November

15.00	**Visitors arrive at hotel**
16.00-18.00	**Visitors' private meeting**
19.00	**Visitors' private dinner at hotel**

Monday 19 November (Liverpool)

07.30	**Visitors depart hotel to travel to Liverpool**
08.30-09.00	**Welcome & Introductions (**Head of School, School Administrator & PA)
9.00-10.30	**Organisation, Finance & Facilities (**Executive Pro Vice Chancellor, Director of Operations, Head of School, Head of Facilities Management, Management Accountant, and members of School's senior management group)
10.30-10.45	**Break**
10.45-13.00	**Tours – Liverpool (Veterinary Teaching Suite, Thompson Yates, Small Animal Practice, Teaching Laboratory and Lecture Theatres)**
13.00-14.00	**Buffet lunch with Years 1-3 students selected by the students' University Veterinary Society (The Hub, Foresight Centre)**
14.15-15.30	**Teaching Quality & Evaluation (including RCVS consideration of Stage 2 material)**
15.30-16.00	**Break**
16.00-16.45	**Tour of Library**
16.45	**Visitors depart from Liverpool and return to hotel**
18.00	**Visitors private meeting followed by dinner at hotel**

Tuesday 20 November (Leahurst – majority of tours at Leahurst)

08.00-09.00	**Meeting with Head of School and School Administrator (if required)**
09.00-09.45	**Post graduate training and CPD**
10.00-12.30	**Tours (Equine and Small Animal facilities)**

08.00-13.00	**Abattoir visit – Gaspar Ros and David Black visit abattoir in Anglesey, then return to Leahurst to join group**

12.30-13.30	**Buffet lunch with Visitors & students (Years 4 & 5)**
13.30-16.00	**Tours continue – Leahurst campus – Wood Park Farm, Ness Heath Farm, Farm Animal Practice, Research and teaching laboratories, Post mortem rooms.**
16.00-16.45	**Extra Mural Studies**
19.00	**Dinner with Visitors & senior School staff (at hotel)**

Wednesday 21 November (Leahurst)

08.00-09.00	**Meeting with Head of School and School Administrator (if required)**
09.00-09.45	**Curriculum – Overall & Review**
10.00-10.30	**Curriculum – Form & Function**
10.30-11.00	**Coffee**
11.00-11.45	**Pathology & Paraclinical**
12.00-13.15	**Buffet lunch with Visitors, interns & residents**
13.15-14.00	**Public Health**
14.00-15.30	**Clinical (including electives)**
15.30-16.00	**Tea**
16.00- 17.00	**Meeting with alumni, EMS providers, employers**
18.30-19.00	**Visitors private meeting at hotel followed by dinner**

Thursday, 22 November (Leahurst)

08.30	**Visitors depart from hotel**
09.00-09.45	**Admissions & Widening Participation**
10.00-10.45	**Research**
10.45-11.15	**Coffee**
11.15-12.00	**Student Support**
12.00-13.00	**Confidential meetings with staff and students**
13.00-14.00	**Buffet lunch with research students**
Afternoon	**Visitors' private meeting, report writing, consideration of additional Liverpool paperwork**

Friday, 23 November (Liverpool)

08.00	**Chairman of Visitors meeting with Head of School**
10.00-11.00	**Exit meeting with Vice Chancellor in Liverpool**
	Visitors depart

University of Liverpool's Response to Visitation Report

The University of Liverpool thanks the Royal College of Veterinary Surgeons (RCVS) and the European Association of Establishments for Veterinary Education (EAEVE) for the report following the visit to the School of Veterinary Science in November 2012. The University and the School appreciate the commendations and the recognition that the University is committed to the Veterinary School.

The University is pleased to note the conclusion that the BVSc course continue to be approved albeit conditionally. The School welcomes a revisit in three years time to review implementation of the new curriculum and to allow an examination of our responses to the report recommendations.

There has been a period of significant change within the Faculty of Health and Life Sciences over recent years and the University and the Faculty are committed to ensuring that the School of Veterinary Science benefits from these changes. A Veterinary Advisory Board has been introduced to oversee veterinary activity and the inaugural meeting of this board was in May 2013. A reinforcement of the leadership structure within the School has been implemented and a communication strategy has been put in place to ensure that all staff feel informed and engaged.

The University appreciates acknowledgement of the significant investment in new facilities since the previous visit. This programme of development is on-going with the completion of the Leahurst learning Centre in May 2013 providing additional teaching space to the Leahurst Campus. The School will continue to monitor facilities and resources, including staff, in line with student numbers.

We have outlined further responses to the specific recommendations below.

Commendations

47. The Visitors commend Liverpool on:

    e. the University's investment in the excellent new facilities on both campuses and in particular on the new preclinical teaching building and small animal practice in Liverpool, as well as the new small animal teaching hospital, the equine facilities and the pathology refurbishment at Leahurst on the Wirral. Further, they commend the University for the commitment of funds to continue the renewal of the Leahurst site.

    f. the Veterinary School's admissions team and the use of the "multiple mini interview" technique for selecting new students. This process, which was first implemented a number of years ago at Liverpool, demonstrates Liverpool's foresight in selection processes.

    g. the systems for ensuring student welfare, and in particular the peer-counselling system and buddy support system.

    h. the School's commitment to delivering CPD to the profession and in particular its contribution to delivering and assessing the RCVS Certificate in Advanced Veterinary Practice

Recommendations

48. The Visitors recommend that the University addresses the following issues and reports annually on progress towards their implementation.

    l. The Faculty should develop and communicate a clear, focused and structured strategy for the Veterinary School, and support the Head of School and her senior management group to achieve this. (Chapter 2)

Since the visit the Faculty has developed a more formalised structure within the Veterinary School and this has been communicated via open meetings, podcasts and emails as well as departmental meetings. Leadership training has been put in place for all staff responsible for management within the school. Management structures are arranged around the University strategic plan and the key priorities. A veterinary advisory board, chaired by the Executive Pro-Vice Chancellor Professor Ian Greer, has been set up and this will support the Head of School in developing the school strategy. The inaugural meeting of the veterinary advisory board took place in May 2013.

    m. Clinical research, scholarship and career development of those inside the Veterinary School must continue to be a focus. Recruitment, retention and replacement of staff with veterinary expertise involved in teaching on the veterinary undergraduate programme must be monitored and protected. The Faculty of Learning and Teaching as well as the School of Veterinary Science must closely monitor the impact of the structural changes in the University on veterinary teaching and on the ability to attract veterinary qualified academic staff to participate in the School and in the veterinary teaching programme. (Chapter 2)

Retention and recruitment of veterinary staff is seen as a priority by the Faculty. Processes are in place for recruitment of research active veterinary staff through the school with placement of appointed staff into the most appropriate research department rather than recruitment being driven through an individual research institute. This process allows the needs of the veterinary school teaching programmes to be prioritised whilst still allowing research active staff to be recruited.

    n. The School should make available for inspection the resource allocation model and service level agreements or similar, as soon as they are agreed. (Chapter 3)

The Faculty is currently working on a resource allocation model and this will be made available to RCVS and EAEVE when completed.

    o. The Faculty of Learning and Teaching and the School of Veterinary Science should work actively to develop and improve the 'old' curriculum during the overlap period with the introduction of the new curriculum. It should ensure that the communication strategy is carefully managed, and that staff keep in mind the needs of the present students while planning for the future. (Chapter 4)

Two separate programme directors have been appointed; one for the "old" curriculum and one for the new. This will allow ownership of the 'old' curriculum and ensure that the director is focussed on working to improve and develop this programme rather than being involved in developing a new curriculum.

p. Formative assessment and feedback to students must be provided for all modules in the current curriculum as well as being built into the new curriculum, so that students are able to evaluate their progress toward achieving the required learning outcomes for every teaching module and clinic. (Stage 1 - Chapters 4 and 5, and Stage 2 - Chapter 2)

The programme director for the "old" curriculum (see above) will be responsible for ensuring that formative assessment and feedback is provided for students on all modules and parts of the programme. Current areas of best practise will be used to develop formative assessment and feedback throughout the course.

q. Final versions of the new curriculum should be submitted for inspection with revisit within three years. (Chapter 4)

The school will provide final versions of the new curriculum for inspection when available. The new curriculum has now been approved by the Faculty Academic Standards and Quality Committee and will be introduced to students entering the programme in September 2013.

r. The School should strengthen the coverage of practice management, including financial issues, in both the current and the planned new curriculum. (Chapter 4)

Changes will be made to the current curriculum to strengthen this area of curriculum including enhancement of student engagement in practice management and finances in the University practices.

s. The University should ensure that support for veterinary clinical research within the Faculty and School is not eroded so that it can continue to be the cornerstone of veterinary undergraduate teaching, as well as contributing to the advancement of the profession. (Stage 1, Chapter 13 and Stage 2, Chapter 8)

The Faculty supports veterinary clinical research and this is a key part of the strategy for the School. It is recognised that the research institutes may have a stronger focus on more basic research and therefore the budgets and resources for clinical research are within the school. The Veterinary Advisory Board will have oversight of the school strategy and play a role in ensuring clinical research is not eroded.

t. The School should give priority to implementing the Student Experience Log as soon as this is available in order to integrate learning from EMS with the rest of the curriculum and ensure that tutors have an effective role in guiding students' learning from EMS. The School should ensure – either through the SEL or through other systems the School may develop to supplement it – that timely EMS assessments are captured and provide feedback to both students and EMS providers. (Chapter 14)

The current director of clinical EMS will retire in the autumn of 2013 and this has given an opportunity to the school to review all processes for EMS alongside the introduction of a new director. The comments and recommendations from the visitation report will be taken into account as part of this review process.

u. The School must provide and effectively publicise to students a 24 hour per day contact number to be used in the event of emergencies that may occur during EMS placements, and provide this with other instructions relating to EMS. (Chapter 14)

The School will ensure that this is put in place and communicated to all students and this will be part of the review as described above (i).

v. The School must implement a programme of outcomes assessment, in line with best international practice in the sector. (Stage 2, Chapters 1 and 5)

The Veterinary School will put in place a specific programme of outcomes assessment for the School as well as being part of the University wide outcomes assessment programmes.

Cover image: Photograph of stained glass window in reception at the RCVS, Belgravia House

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