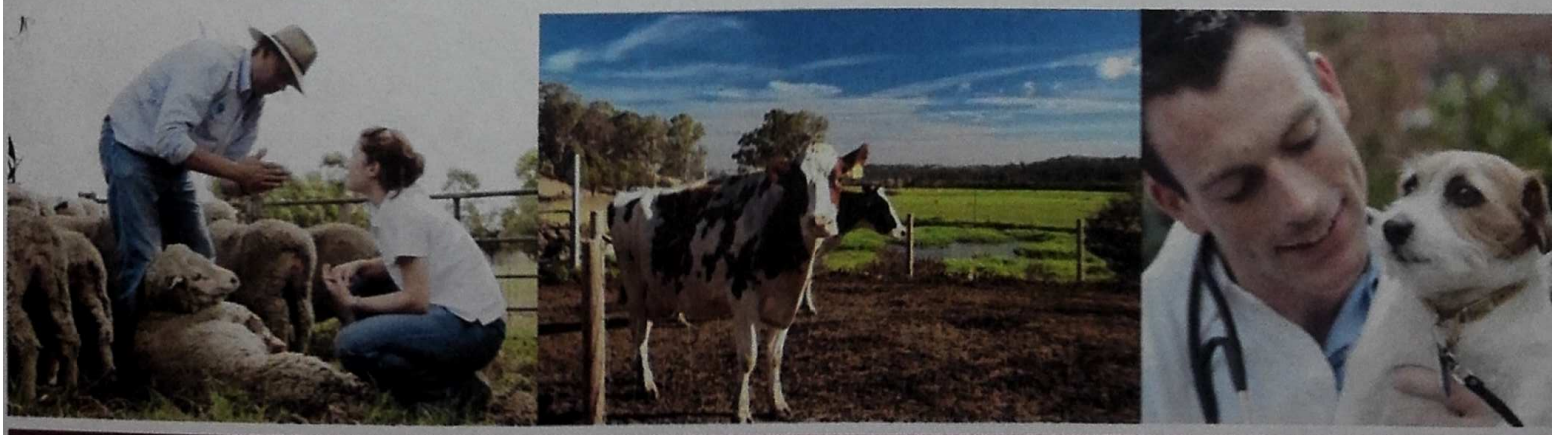
The University of Sydney

Faculty of Veterinary Science



Veterinary Schools Accreditation Advisory Committee

Self Study Report



September 1 - September 6, 2007

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INTRODUCTION

Please provide an outline of the main features of the history of the establishment in the period since the last evaluation visit. Cover the main organisational changes, new regulations relating to teaching, new buildings or major items of equipment, main changes to the study program, important decisions made by the management of the establishment, or by the authorities responsible for it, major problems encountered by the establishment, whether resolved or not.

The last visit of VSAAC was in September 2001 with a follow up visit in October 2004. A further visit was made by the RCVS in September 2005 to review the practical teaching of Veterinary Public Health. All the recommendations and issues raised at these visits have successfully been accomplished to the satisfaction of the accrediting bodies. The Faculty received full accreditation from the AVMA in October 2005 for a seven year period. The full details of organisational and other changes are dealt with in the relevant standards.

1. Factual Information

Indicate the school's mission and official list of the overall objectives. Please indicate who determines the official list of objectives of the veterinary school, by what procedure this list is revised and do you have a permanent system for assessing the achievement of the establishment's general objectives? If so, please describe it.

Faculty Mission Statement

The Faculty of Veterinary Science aspires to be an international leader in veterinary and animal education and research. Its core purpose (mission) is to create knowledge and provide outstanding education, thereby improving animal health, production, welfare and conservation for the benefit of the global community, the environment and public health. There are four strategic components of this mission, namely: to educate high quality, adaptable graduates and postgraduates who will provide leadership for the professions and the community in a wide variety of domestic and native species; to provide high quality research and clinical advances that meet the needs of the professions, industry, and the community; to provide clinical service and leadership for the profession, industry and the community; and to ensure sustainability through the Faculty acting in a fiscally responsible manner, with due regard to human, intellectual and physical resources.

The Faculty's Values

The Faculty prides itself in operating as a 'family', where students are treated as future colleagues and all staff contribute to direction in teaching, research and service. The profession is regarded as the extension to this family. This view is underpinned by a culture that has as its core values mutual trust and respect, pride in heritage, reward and recognition, willingness to accept necessary change and shared responsibility. As a consequence, the Faculty can deliver inspirational and innovative student-centred teaching that leads to an acceptance of the need for life-long, evidence-based learning. The Faculty can provide clinical and research excellence through creative, collaborative programs and supportive, encouraging postgraduate supervision.

Objectives

The Faculty's mission statement and objectives were originally set up in its Strategic Plan of 2000 in a consultative process with internal and external stakeholders. This has been reviewed and updated annually since then by the Faculty Executive Committee. A new Strategic Plan is prepared every five years and this is required to be aligned with the University's overall plan for the whole institution. From 2007 all 16 Faculties are required to adhere to a set of KPI's that cover all aspects of teaching, research and administration.

a) **Education** – to produce high quality, adaptable graduates and postgraduates who will provide scientific and clinical leadership for the professions and the community. The specific objectives are to:

- continue to provide a first rate educational experience through inspirational teaching and quality assurance programmes,
- develop clinical teaching hospitals to provide excellent conditions for undergraduate teaching and postgraduate training,
- engage with the veterinary profession, other professions and accreditation bodies to ensure the curriculum delivers key graduate attributes,
- develop highly trained teachers who use evidence to improve student learning,
- extend the use of information technology in learning to support evidence-based practice and research-led teaching.

b) **Research** – to provide high quality research and clinical advances that meet the needs of the profession, industry and the community. The specific objectives are to:

- provide for research team building and collaboration to optimise the research output of staff and resources,
- develop an attractive postgraduate research student programme and culture,
- develop and maintain a physical infrastructure that enables the Faculty to conduct first class research,
- improve the sustainability and intellectual and financial profitability of research by encouraging diversity.

c) **Service** – to provide scientific and clinical service for the profession, industry and the community. The specific objectives are to:

- increase recognition of the Faculty through excellent service in all the areas currently covered,
- provide cutting-edge services with continually improving performance,
- increase the diversity of service being offered to the community,
- create and expand effective communication practices to deliver optimal service to all stakeholders.

d) **Financial and Cultural Sustainability** – to ensure that the Faculty acts in a fiscally responsible manner with due regard to human, intellectual and physical resources. The specific objectives are to:

- intensify efforts to increase all forms of revenue to the Faculty,
- ensure strategic use of existing financial, physical and human resources,
- continue to develop new infrastructure needs of education and research at both campuses,
- reward and recognise achievement and creativity in education, research and service,
- create an environment that provides opportunities for personal and professional development,
- develop a management structure and effective communication networks that support inclusiveness in decision making.

2. Comments

In your view, to what extent are the objectives achieved?

The Faculty's and University processes (see other standards for details) are being achieved across the board. We are maintaining our high academic standards through feedback from students, external stakeholders and the University.

What, in your view, are the main strengths and weaknesses of the establishment?

The strengths of the Faculty are its academic scholarship, first class professional training and a successful program of basic and applied research. It is now well integrated into the new University structure, and can look to a successful and sustainable future. The major weakness is a lack of funding for infrastructure and new academic programs, but this is being addressed and the Faculty is receiving considerable financial support and advice, particularly in relation to the management of the Veterinary Teaching Hospitals.

3. Suggestions

Chapter 1 Organisation (Standard 1)

1.1 Factual Information

Please give the basic details of the establishment, starting with the name, address, telephone and fax numbers, email addresses and website addresses.

Details of the establishment

Name of establishment: Faculty of Veterinary Science
Address: University of Sydney, Sydney, NSW 2006
Telephone: 02 9351 6936 (Dean's Assistant)
Fax: 02 9351 3056
Faculty Website: www.vetsci.usyd.edu.au
Email: vetsci@vetsci.usyd.edu.au
Head of establishment: Dean, Professor Leo Jeffcott
University website: www.usyd.edu.au
The Faculty of Veterinary Science is established within the University of Sydney. Authority of the overseeing institution is outlined below.

Describe briefly the responsibilities, constitution and function of the main administrative bodies (councils, committees etc).

Regulation of the University of Sydney

Under NSW legislation the University of Sydney is governed by its Senate (*University of Sydney Act 1989*). The Senate consists of the Vice–Chancellor and the Chair of the Academic Board, representatives of the NSW parliamentary Minister for Education and Training, members of the NSW Legislative Council and Legislative Assembly, and members elected by different University groups. The Senate is legally responsible for all aspects of the University and reports to the NSW Minister for Education and Training. The Academic Board coordinates and maintains an overview of the academic activities of all faculties and reports to the Senate on all matters of teaching and research in the University. One task of the Academic Board is to review all Faculties, with the most recent review of the Faculty of Veterinary Science being undertaken in September 2003 (Phase 2). A third phase of Academic Board review are currently being planned.

The *University of Sydney Act 1989* enables the University Senate to confer degrees in a self–accrediting manner, with the expectation that the University will regulate all of its functions appropriately and in accordance with the Act. The University of Sydney is recognised and funded by the Commonwealth of Australia as an institution of Higher Education. The University of Sydney is also a member of The Group of Eight, Australia's major research–intensive universities, and of the Association of Pacific Rim Universities (APRU).

Organisation of the University of Sydney

The Vice–Chancellor of the University of Sydney is the principal and executive officer of the University. The University's governing body is the Senate. The Academic Board advises the Senate on academic issues within the University.

In April 2006 the University introduced a new organisational structure which resulted in the dissolution of the three Academic Colleges and the formation of smaller groups of similarly aligned Faculties. This new structure aligns Veterinary Science with the Faulty of Agriculture Food and Natural Resources and the Faculty of Science. In addition, there have been a number of new positions created within the University senior management team to facilitate University business. The new structure is outlined in *Fig. 1:* ***University Organisational Chart*** *- see Appendices for this Standard.*

The Dean of the Faculty reports to the Provost and Deputy Vice-Chancellor. The Administrative Divisions of the University provide policy, assistance and resources for Faculties in specific areas,

such as Teaching and Learning, Planning Support and Facilities Management.

Organisation of the Faculty of Veterinary Science

The Faculty adopted a single school structure in 2001 which has enabled the consolidation of teaching and administrative resources to deliver its BVSc curriculum more effectively. In this structure, under the authority of the Dean, Pro–Dean, Faculty Executive and Faculty Board, six sections are delineated: Staff, Students, Learning and Teaching, Research and Faculty and Clinic Management. All staff report to the Dean either directly or through their respective Associate Deans or Section leaders.

There have been a number of recent minor changes in structure in relation to the executive administration of the Faculty.

The Associate Dean for Staff and Students has been split into two positions. The Associate Dean for Staff is the executive officer in charge of all matters relating to personnel and the Associate Dean for Students is in charge of all matters relating to student support and admissions. Both positions sit on the Faculty Executive Committee. Two SubDeans for Students (Sydney and Camden) have also been created to support the Associate Dean.

The Faculty and Business Manager position has been split into the Faculty Manager who is responsible for all administrative matters including student services and the Faculty Finance Manager who is responsible for all financial matters. Both positions sit on the Faculty Executive Committee.

A flow chart showing the organisation of the Faculty of Veterinary Science is outlined in *Fig. 2:* ***Faculty of Veterinary Science Organisational Structure 2007*** *– see Appendices for this Standard.*

Faculty Executive

Dean

Professor Leo B Jeffcott, MA*(Camb)*, BvetMed *(Lond)*, PhD *(Lond)*, FRCVS, DVSc *(Melb)*, VetMedDr *(Uppsala)*
The Dean is the chief executive officer of the Faculty and Chair of the Faculty Executive. The Dean's role is to represent the faculty to senior university officers and to external stakeholders and to ensure the well–ordered running of the Faculty. The Dean reports to the Provost, and is ex–officio Chair of all Faculty committees.

Pro Dean: Professor Paul Canfield, DVSc PhD GradCertEdStud, FRCPath FACVSc MRCVS
Acts for the Dean upon request by the Dean. In acting for the Dean, the Pro–Dean is delegated all the powers and responsibilities of the Dean and is an ex–officio member of all Faculty committees.

Faculty Executive Committee (FEC)

The FEC is chaired by the Dean and is composed of the Pro–Dean, the Associate Deans of Research, Learning &Teaching, Staff and Students, the SubDean for Camden, the Faculty Finance Manager, the Faculty Manager, the Clinic Directors and the Clinic Finance Manager. This committee must have at least one person based at the Camden campus. The FEC functions to advise the Dean on specific Faculty activities and requirements. It also implements University of Sydney policies and develops and implements policies of the Faculty. In addition, the FEC makes recommendations to the Faculty Board.

Faculty Board

The Faculty Board consists of all academics and clinical staff, representatives of the profession, elected members of general staff and postgraduate and undergraduate students. The Board meets twice yearly to debate and agree on Faculty policy.

Faculty Manager; Ms Shirley Ray, BAppSci *(NSWIT)*, MSc *(UNSW)*, GradDipEd *(Syd)*
The Faculty Manager is the executive administrative manager of the Faculty of Veterinary Science and is responsible for all administrative matters in relation to the student services of the Faculty including admission, enrolment, examinations and graduation and Faculty facilities.

Staff

Associate Dean Staff: Professor Chis Maxwell, BScAgr, PhD
The Associate Dean for Staff is the executive officer in charge of all matters directly related to personnel support. The Associate Dean for Staff advises the FEC on budget allocation and all other matters relating to personnel.

Personnel Committee
The Personnel Committee is chaired by the Associate Dean Staff and focuses on performance management and development programmes for the Faculty. It also considers progression and study leave, and is responsible for making recommendations for staff promotions and staff appointments.

Students

Associate Dean Students: Dr Rhondda Canfield, BVSc, PhD
The Associate Dean for Students is the executive officer in charge of all matters relating to student support and welfare. There are two Sub Deans for Students who provide additional support for students and assist the Associate Dean with the 'students at risk' program and welfare issues.

Sub–Deans, Students
Sub Dean Students: Dr Melanie Collier, BSc, PhD *(Leeds)*
Sub Dean Students: Ms Irene Van Ekris, BAppSc *(JCU)*, GradCertEdStud (Higher Education)

Staff–Student Liaison Committee
This committee is chaired by the Associate Dean Students, and is responsible for coordinating orientation programmes for first year Veterinary Science students. It also provides advice on student welfare and advocacy issues and liaises with student representatives. It meets twice a year.

Learning and Teaching

There were a number of changes to the structure of the Faculty's Learning and Teaching committees in 2006. The single Faculty L&T committee (LTC), which was chaired by the Sub Dean Learning & Teaching, has been replaced by a tiered structure of five subcommittees (chaired by their respective Sub Deans) and an overarching Faculty Committee (chaired by the Associate Dean L&T). The Associate Dean L&T sits on the Faculty Executive committee.

Associate Dean Learning and Teaching: A/Prof Rosanne Taylor, BVSc, PhD
Is the executive officer in charge of all matters directly related to undergraduate education, other than the BSc (Vet) degree. The Associate Dean for L&T advises the FEC on budget allocation to faculty educational programmes.

Sub–Deans, Learning and Teaching
Sub Dean BVSc: Associate Professor David Evans, BVSc, PhD
Sub Dean Animal & Veterinary Bioscience: Associate Professor Christopher Moran, BSc, PhD *(ANU)*
Sub Dean Information Communications Technology and e-Learning: Dr Paul Sheehy, BSc Agr, PhD

Sub Dean Animal Husbandry Extra Mural Placements: Dr Pietro Celi, DMV *(Italy)*, PhD *(WA)*
Sub Dean Undergraduate Admissions: (Acting) Mrs Shirley Ray, BAppSc, MSc, GradDipEd
Sub Dean Postgraduate Coursework: Ms Hannah Forsyth, BA, MA

Learning and Teaching Committees
The **Faculty L&T Committee** is chaired by the Associate Dean for L&T. The committee is composed of the Sub Deans for each teaching area (see above), the Associate Dean Students, and a representative from the University Library. The committee oversees L&T issues within the Faculty, reviews and approves recommendation from the Subcommittees and supports teaching developments and mentor programs.

The **BVSc Subcommittee** is composed of the Year Coordinators, representatives from the Faculty clinics, the co-ordinators of EMS programs (pre-clinical and clinical), student representatives and a Library representative. This committee reviews and implements curriculum development and teaching policies, advises on infrastructure support and equipment, reviews unit of study evaluations and student course evaluations and is responsible for coordinating publications such as Unit of Study handbooks. Finally this committee is also responsible for ensuring compliance with accreditation standards.

The **Information Communication and Technologies and e-Learning Committee** is chaired by Sub Dean ICT and e-Learning and is responsible for managing the information technology platform that services all Faculty teaching and activities.

Sub Dean Animal Welfare: Dr Robert J Dixon, BSc(Vet), BVSc, PhD *(Massey)*
The Sub Dean (Animal Welfare), reports to the Associate Dean L&T and the Pro–Dean, has the responsibility for overseeing implementation of Faculty animal welfare policy, co-ordinating animal use for teaching, interacting with major animal welfare groups and ensuring an effective process for

compliance of the Faculty with applications to the Animal Care and Ethics Committee.

Committee for Animal Welfare
The Animal Welfare Committee is chaired by the Sub–Dean for Animal Welfare and is responsible for providing policy advice and implementation to the Faculty. The committee's brief is to be proactive in current animal welfare issues, promote effective applications to, and liaise with, Animal Care and Ethics Committee (ACEC). The committee ensures the welfare of animals in the care of the faculty including those used for teaching, and is responsible for the continual development of welfare and ethics aspects of the undergraduate curriculum. The Animal Welfare Committee provides appropriate educational services in animal welfare external to the Faculty, and liaises with animal welfare organisations and government to promote welfare of animals.

Other Committees responsible for Learning and Teaching
In addition to the L&T Committee, other committees related to L&T are:

- ***Undergraduate Admissions Committee*** is chaired by the Sub–Dean Undergraduate Admissions and supervises undergraduate admissions.
- ***Extramural Placements Committee*** is chaired by the Sub Dean Extramural Placements and identifies and coordinates external teaching resources.
- ***Examinations Committee***, to implement policy, review appeals and review, confirm and submit to the University examination results for all students in the Faculty.

Research

Associate Dean Research: Professor Gareth Evans, BA (Ox), PhD
The Associate Dean for Research is the executive officer in charge of all matters directly related to research, including the management of scholarships, the BSc(Vet) programme and postgraduate teaching. The Associate Dean for Research is a member of the Faculties Research Advisory Committee and advises the FEC on budget allocations to Faculty research.

Sub Dean Research Development: Associate Professor David Emery BVSc, BSc(Vet), PhD is an ex-officio member of the Research Advisory Committee and is responsible for enhancing the research profile of the Faculty within the existing research policy framework and according to direction from the Research Advisory Committee and the FEC. In particular the position has been established to assist development of research opportunities, especially in the private sector.

The Sub Dean BSc(Vet), Dr Glenn M Shea, BVSc, PhD oversees the BSc(Vet) program, which is a one year research degree that veterinary students can undertake at the end of Year 3 or 4.

Sub–Dean Postgraduate Research Education, Dr Merran Govendir, BVSc, PhD

Research Advisory Committee (RAC)
The Research Advisory Committee is chaired by the Associate Dean Research and promotes and profiles Faculty research programs, advises on research policy and prepares and implements research budgets.

Postgraduate Studies and Research Training Committee
The Postgraduate Studies and Research Training Committee is chaired by the **Sub–Dean Postgraduate Education,** Dr Merran Govendir and is responsible for admissions, progressions and completions of all postgraduate research degrees.

Higher Doctorate Committee
This committee is responsible for the evaluation of submissions for the degree of Doctor of Veterinary Science.

Human Resources

HR Relationship Coordinator: Ms Stephanie Stanyer
The HR Relationship Coordinator is responsible for all procedures related to staff management and provides advice to the Pro Dean, Associate Dean Staff and the Faculty Manager.

Financial Management of the Faculty

Faculty Finance Manager: Ms Janice Bert
The Finance Manager, who reports to the Dean, is responsible for all financial matters and advises the FEC on the effective financial management of the Faculty budget within the guidelines determined by the Faculty Executive.

Financial Sustainability Board provides strategic financial advice and support to the Faculty to ensure the financial sustainability of the Faculty. The Board is chaired by an alumnus of the Faculty and former Head of Veterinary Clinical Sciences and is composed of representatives of the University's Strategy Implementation and Sustainability Planning Office, the Chief Operating Officer, the Dean and Faculty Manager and a representative of the profession.

Clinic Management

Teaching Hospital Directors

University Veterinary Centre, Camden: A/Prof Andrew Dart BVSc, Diplomate ACVS

University Veterinary Centre, Sydney: Dr Julia Beatty BSc(hons) BVetMed PhD FACVSc. MRCVS

The Hospital Director of each Veterinary Hospital is the executive officer in charge of all matters directly related to the provision of veterinary clinical services.

Business Manager – Clinical Practice: Mr Craig Lord

The Business Manager – Clinical Practice is responsible for converting strategic planning of the clinics into actions and ensuring that the teaching hospitals are moving to first-class standards that meet the needs of students and ensure growth.

The **Faculty Finance Manager**, in consultation with the business manager clinical practice, advises the FEC on recurrent budget allocations relating to the Clinics. The Finance Manager is responsible for ensuring that all non–recurrent veterinary services funds are managed by the Clinic Directors of the University Veterinary Centres, in accordance with university guidelines and for the well being of the Faculty.

Additional Committees of the Faculty

Facilities Management Committee

This committee is chaired by a nominee of the Dean and makes recommendations to FEC regarding laboratory infrastructure, building maintenance, general precinct issues and animal unit development and maintenance. It also develops policies and procedures for the maintenance and management of faculty facilities and ensures occupational health and safety issues are addressed.

Camden Advisory Committee

The Camden Advisory Committee, chaired by the Sub Dean Camden (Dr Imke Tammen), advises the Dean and Faculty Executive Committee on all policy and resource matters relating to the development and management of the Camden Campus.

Indicate the involvement of the veterinary profession and general public in the running of the Faculty.

External Advisory Board

The External Advisory Board was established to provide strategic advice and support in relation to veterinary curriculum and its relevance for the profession and to assist in forming links with key external stakeholders. The Chair of the current group is Dr Garth McGilvray, former president of the AVA.

Veterinary Science Foundation (VSF): Director - Ms Jacqueline Booth

Established in 2000, the VSF is the fundraising and promotional arm of the Faculty. Through its partnership with the Faculty, the Foundation is dedicated to supporting animal health and welfare, the education of future veterinarians, and excellence in research.

The Foundation undertakes external and internal communications on behalf of the Faculty and plays a key role in developing relationships with stakeholders including alumni and undergraduates, donors, benefactors and other friends of the Faculty, industry and the non–veterinary business community, the media, clients of the Faculty's veterinary clinics, the general community. To facilitate these communications, the Foundation manages:

Roundhouse – the Faculty's twice–yearly magazine with a current circulation of 4,500.
Rumenations – a monthly email publication primarily for staff and students.
Special events – including annual Open Days and keynote speaker events.
Media relations – promoting the Faculty through liaison with a media consultant.
Clinics Newsletter – an email publication providing information about our two teaching hospitals.
The Foundation's website – http://www.vetsci.usyd.edu.au/Foundation

The relation ship between the Faculty and the veterinary profession occurs at a number of different

levels. One of the most important relationships is the involvement of practitioners in the education of BVSc graduates through the Partners in Veterinary Education, clinical rotations in final year and the involvement of the Education Support Practices during Years 1 and 2 of the curriculum.

Other areas include:

- Partners in Veterinary Education Conference which is held annually to support practices involved in the education of graduates (see Standard 8: Clinical Resources and Clinical Learning and Teaching for more information).
- Postgraduate Foundation in Veterinary Science is involved in continuing education for veterinary practitioners and operates from the Veterinary Precinct on campus. Professor Paul Canfield is an elected member of the Post Graduate Foundation Council and the Dean is an ex-officio member of the Council.
- Collaborative projects with industry partners such as Meat and Livestock Australia, Rural Industries Research and Development Corporation and animal health companies.
- Poultry Research Foundation was established in 1958 and provides an interface between the Australian poultry and allied industries and the Faculty of Veterinary Science. It sponsors industry related research, assists in the training of scientific personnel and acts in an industrial liaison capacity.
- Dairy Research Foundation located on the Camden Campus serves a unique role within Australia's dairy industry by integrating a program of basic and applied research at the cutting edge of dairy science and production with extension activities to disseminate this information among dairy farmers nation wide.
- Dr Merran Govendir, lecturer in pharmacology in the Faculty is a member of the Veterinary Practitioners Board of NSW.
- The Cenvet Companion Animal Practitioner in Residence Program has been established to provide an opportunity for continuing education in companion animal veterinary studies for a participant in the Faculty of Veterinary Science Partners in Veterinary Education Year 5 Program.
- Appointment of Adjunct academic staff, who contribute significantly to teaching and/or research and who are fostering partnerships between the Faculty and industry, the profession or the wider community.

Indicate the rules concerning the appointment of the senior officials of the Faculty (Deans, ProDeans, Associate Deans etc)

Dean: A selection committee, including the Vice-Chancellor's nomination for an external member and a Faculty Liaison Officer, is convened to assess, shortlist and interview suitable applicants for the position of Dean. At any time during the short listing process the Committee may consider and decide to invite applications from persons who have not applied. The Vice-Chancellor, after consultation with the Chair of the Academic Board, the Provost and the Faculty though the Faculty Liaison Officer, will take the Selection Committee's recommendation, together with his/her advice, to Senate for approval. **Pro Dean** is appointed by the Dean.

Associate Deans are appointed upon a recommendation by a selection committee after a consultative process which includes advertising the positions and seeking feedback on the applications. Associate Deans hold office for two years.

Sub Deans are appointed after a nomination and election process. Sub Deans hold office for two years.

1.2 Comments

Add any comments on the organisation and functioning of the establishment which you feel useful for completing the description.

The dissolution of the academic college structure within the University and the grouping of the Faculty of Veterinary Science with the Faculties of Science and Agriculture, Food and Natural Resources have resulted in little change to the overall functioning of the Faculty. It is possible that there will be more opportunity for the sharing of resources particularly in administrative areas such as IT, human resources and marketing. The introduction of Subcommittees within the Faculty Learning and Teaching structure has resulted in a more efficient forum for discussion and information dissemination

for each of the courses (degrees) offered within the Faculty and for focused decision making process in relation to curriculum review and policy development.

1.3 Suggestions

If you are not satisfied with the situation, please list your suggestions for change in order of importance.

The move towards further shared services within the University has obvious advantages, however, the Faculty must remain vigilant in maintaining its autonomy and the high level of service currently being delivered.

The Faculty structure relies heavily on the administrative duties carried out by the academic staff. It is essential that the Faculty remain proactive in the planning needed to ensure that these important positions are filled in the future.

Appendices Organisation (Standard 1)

Fig. 1: University Organisational Chart

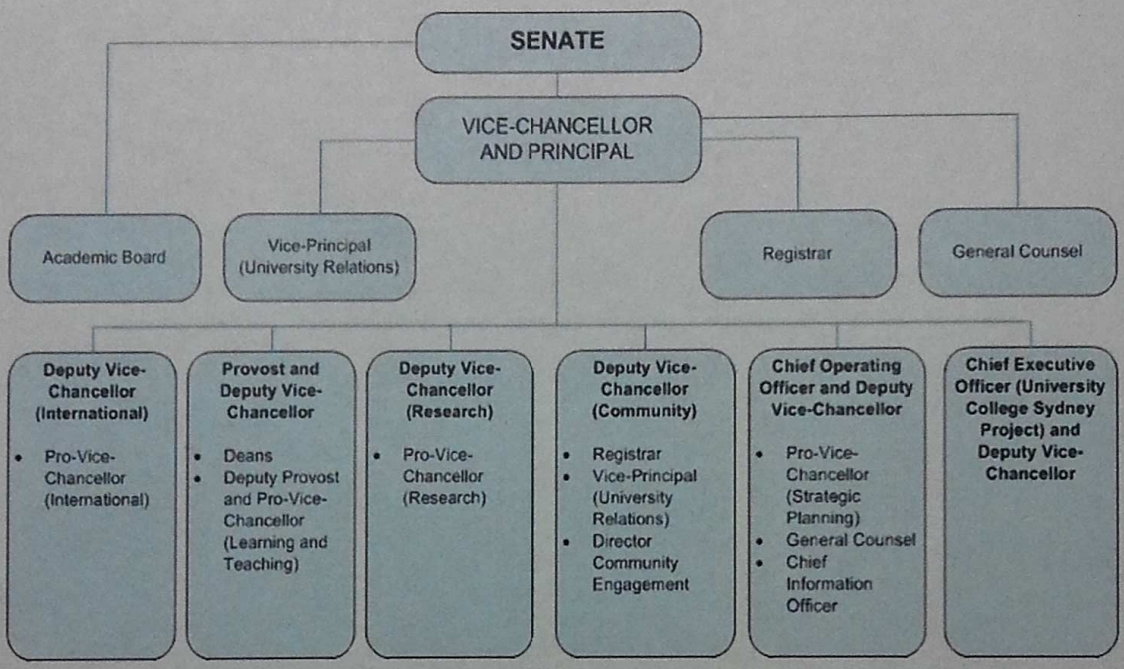
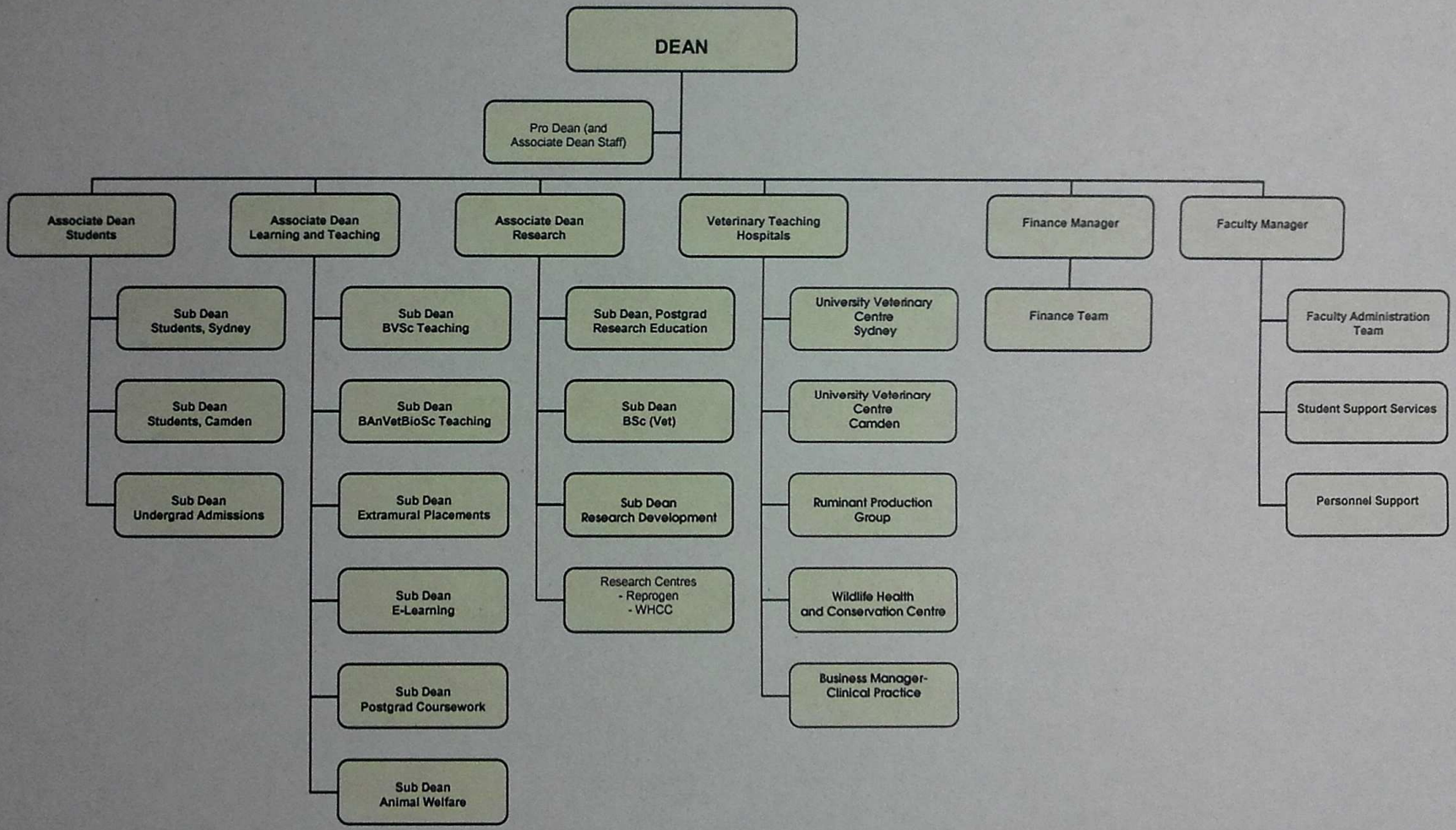


Fig. 2: Faculty of Veterinary Science Organisational Structure 2007



Chapter 2 Finances (Standard 2)

2.1 Factual Information

2.1.1 Expenditure

This means the total expenditure made by the establishment itself and by other bodies on behalf of the establishment (eg. the university. Specify the calendar year or academic year to which you information refers. Wages and salaries should include contributions (eg. superannuation payments). The term 'utilities' means water, electricity, gas, fuel etc. Total expenditure should equal the sum of the individual terms ie a + b + c + d = e

Cost of training: The breakdown of the cost of training is difficult because several headings of expenditure cover both teaching and research. For this reason, the cost of training calculated in the table is only part of the items of expenditure.
Annual direct cost of training a student
The number comprises:
a1 – salaries of teaching personnel
a2 – salaries of support staff
b2 – expenditure relating to teaching
c1 – equipment relating to teaching

$$\text{Cost} = \frac{a1 + a2 + b2 + c1}{\text{Number of students in undergraduate training}}$$

Direct cost of training for a degree: *This cost is obtained by multiplying the direct annual cost of training a student by the average number of years of training for a student.*

Table 2.1 Annual Expenditure of the establishment

			2006
a.	Personnel		
	a.1	teaching staff	$ 10,210,876
	a.2	support staff	$ 4,978,207
	a.3	research staff	$ 3,996,572
		Total for a	**$ 19,185,655**
b.	Operating costs		
	b.1	utilities	$ 428, 777
	b.2	expenditure relating specifically to teaching	$ 1,148,920
	b.3	expenditure relating specifically to research	$ 3,990,879
	b.4	general operations (excl. above)	$ 3,253,736
		Total for b	**$ 8,822,312**
c.	Equipment		
	c.1	teaching	$ 556,405
	c.2	research	$ 663,771
	c.3	general (or common) equipment	$ 278,135
		Total for c	**$ 1,498,311**
d.	Maintenance of buildings		**$ 211,803**
e.	**Total expenditure**		**$ 29,718,081**

Table 2.2 Cost of Veterinary training

1	Annual direct cost of training a student	**$**	**29,128**

2.2 Revenues

As for expenditure, please state the calendar or academic year.
Give revenue for only operational activities. Exclude revenue for capital projects or major renovations.
Total revenue should be equal to the sum of revenues from different sources, ie a+b+c+d+e =f
Revenue from public sources (item a) can fluctuate. Please give the total of this revenue for the current year and the past five years in table 2.4.

Table 2.3 Annual revenues of the establishment

		2006
a.	revenue from the State or public authorities	$ 5,435,955
b.	revenue from private bodies	$ 767,679
c.	revenue from research	$ 9,464,048
d	revenue earned and retained by the establishment	
	d.1. registration fees from students	$ 4,607,575
	d.2. revenue from continuing education	$ 492,866
	d.3. revenue from clinical activities	$ 4,736,226
	d.4. revenue from diagnostic activities	$ 368,805
e.	revenue from other sources	$ 5,031,489
f.	Total revenue from all sources	**$30,904,643**

Table 2.4 Changes in public funding

	Current 2007 (Budget)	Previous 2006	N-2 2005	N-3 2004	N-4 2003
Public funding revenue	6,295,000	5,435,955	5,085,119	5,251,937	5,292,545

What percentage of income from the following sources does the veterinary teaching establishment have to give to other bodies (university etc)?

i. Clinical work – nil
ii. analysis for commercial clients - nil
iii. analysis for veterinary practitioners – nil
iv. research grants - overheads charged at rate of 30%, of which university gets 5/12ths and faculty 7/12ths.
v. other - consulting, other external revenue, same rate of overheads as research

Indicate the proportion of additional income that is retained within the institution in each case

As above, the veterinary faculty would retain 7/12 of 30% overheads charged

Outline how the allocation of funding to the establishment is determined, and by what body.

The allocation of funding to the University of Sydney is determined by the Commonwealth Government. The amount allocated to each university is primarily determined by the number of students and the mix of disciplines within the establishment. Up until now, the government has used

ten broad "funding bands" which correspond to the various faculties. Each funding band would attract a different level of funding - for example, Law would traditionally attract less funding than Dentistry or Veterinary Science, based on the relative cost of teaching as well as the relative skill need. In the Budget announcement for the forthcoming financial year, the government has indicated that the number of funding bands will be reduced to seven, and furthermore, that most disciplines (including Veterinary Science) will get increased funding. It should be noted that the mechanism of funding is a relative one - if the gross amount available for tertiary education is increased, all institutions will receive a relatively higher amount.

If the allocation of funds, or any significant proportion of it, is linked to a particular factor (eg student numbers, research output), please describe this.

The allocation of funds is linked to both student numbers and research output, and the combination of these factors is included in what is commonly known as the "funding model" for the university. In general, an amount is calculated for each student in each discipline (with different amounts for different faculties). The research output of the establishment is divided into different categories. One major category is treated separately and funds for this category are allocated in the form of a Research Infrastructure Block Grant (RIBG). Two other major categories, Institutional Grants Scheme (IGS) and Research Training Scheme (RTS) are grouped, with a portion being allocated as part of the "funding model" and a portion being allocated directly to the Research office and other university administration.

Indicate how the basis for funding the establishment compares with those teaching other courses (eg whether veterinary training receives a higher budget weighting compared to other disciplines).

As noted above, the Faculties of the University of Sydney are grouped into "funding bands" and each attracts a different level of funding. The Faculty of Veterinary Science is in the highest band, along with Medicine, Dentistry and Agriculture.

Outline how the allocation of funds within the establishment is decided.

The allocation of funds within the University of Sydney follows the same broad principles as that of the Commonwealth Government. The allocation is made on the basis of the number of students and the band in which the faculty lies. Up until now, the Commonwealth Government has used ten bands, while the university has made its allocation using seven bands. The recent budget has reduced the number of bands to seven. A set proportion of the fees received from the government is devolved to each faculty, with a portion retained by the university to cover the cost of superannuation and other overhead costs. The Faculty further allocates the funds to the teaching hospitals and various administration, teaching and marketing functions. The allocation is generally done based on relative student load. It should be noted that the funds are NOT distributed to individual units of study.

Describe briefly the mechanism(s) for funding capital expenditure (eg building work, major items of equipment,) and how decisions are taken on this.

The funding of capital expenditure is generally in accordance with the University's Strategic Plan for Learning and Teaching, Research, etc. There are three broad areas of capital expenditure. Firstly, the large capital works programs which are planned years in advance and represent significant capital expenditure. Secondly, capital works which are part of regular maintenance and upgrades, and thirdly, work which is the result of identified deficiencies or needs. A request for building work or a major item of equipment would normally be presented with a "Business Case" and details of how it would be funded.

Please indicate whether students:

i. pay tuition/registration fees - Yes
ii. how much these are: 2007 CSPs: $8 333 per 48 credit points (1 year full time)
2007 Local Full Fees: $32 256 per 48 credit points (1 year full time)
2007 International Fees: $37 296 per 48 credit points (1 year full time)
(*note CSP = Commonwealth Supported Places*)

iii. how they are decided: The Commonwealth Supported Place contributions are determined by the Government. Local full fee and International fees are determined by the Faculty in consultation with the University. The fees are reviewed on an annual basis and increased in line with CPI, the cost of teaching and taking market rates into account.

iv. how the funds are distributed: The funds are distributed within the faculty based on the number of local and international students in each area. It should be noted that the funds are NOT distributed to individual units of study.

2.3 Comments

Teaching establishments never have enough finance. Please comment on any of the "Guidelines and Requirements" that are particularly difficult to fulfil in the present financial situation.

In the current environment, there are a number of improvements which could be made to the staffing and equipment resources of the faculty. We do not believe that any material requirements are not being fulfilled due to lack of funds, and there are sometimes other factors which inhibit desired improvements. For instance, there are certain clinical positions which are difficult to fill as there is a lack of available candidates in the market – offering higher remuneration might help the situation, but not in every instance. Also, there are some physical constraints to implementing certain improvements. We believe that we have sufficient staff and equipment to cover the existing requirements, however additional funds would enable more research and further enhancement of the Faculty's offer. It should be noted that we have recently received significant financial assistance from the University with the aim of upgrading a number of our facilities as well as employing additional staff.

What is your number one priority for use of any increased funding?

The number one priority of increased funding is to ensure that the appropriate resources are in place to achieve the Learning and Teaching and Research objectives of the faculty. These resources are primarily staff, but also include equipment.

Comment on the degree of autonomy and flexibility available to the veterinary school in financial matters.

The Veterinary Faculty has been encouraged to take on a high level of autonomy with regard to its financial matters. There are regular "Sustainability Board" meetings held which review the financial situation and progress of the faculty.

Comment on the percentage of income from outside services that the veterinary school is allowed to retain for its own use, and in particular on the extent to which loss of this income acts as a disincentive for the services concerned

The Veterinary Faculty retains all of its clinical and diagnostic income from outside services. The accounts have been set up so as to reflect the true state of profitability within these areas, with all relevant staff and operating costs allocated to the clinics. Loss of this income would significantly impact the services and it would be unlikely that they would be able to continue.

2.4 Suggestions

If you are not satisfied with the situation, please list your suggestions for change in order of importance.

The Faculty is engaged in a continuous effort to increase the level of government support, as well as to increase income from other sources. We recognise that the need to continually upgrade facilities and attract superior staff will require significant funds in the future. A review of our clinics has indicated the need to increase case load and a number of recommendations have been implemented in recent months. We hope to recognise the full potential of the new equipment and staff in the next few years.

Chapter 3 Facilities and Equipment (Standard 3)

3.1 Factual Information

3.1.1 Premises in General

Please give a general description of the site (s) and buildings occupied by the establishment. Include a map if available.

The Faculty of Veterinary Science has two major campuses: Sydney (Camperdown) and Camden. The Sydney campus is located within the main campus of the University and at present caters for the major educations requirements for Years 1-3 and part of Years 4 and 5. The Camden campus is located approximately 70kms South-West of Sydney and caters `for the education requirements of components of Years 1-3 and a growing component of Years 4 and 5. Small animal and wildlife teaching is done at both campuses, but production animal and horse teaching is only done at Camden.

The **Sydney (Camperdown) Campus** consists of five main buildings:

- **JD Stewart Building** (B01) that houses Veterinary Anatomy offices, research laboratories and practical teaching facilities, some general teaching facilities (Computer Access Laboratory; Clunies Ross Lecture Theatre), student Common Rooms and eating facilities, student change rooms (mainly male), central administrative facilities and the Veterinary Science Foundation
- **RMC Gunn Building (B19)** that houses Veterinary Physiology and Animal Science research laboratories and offices, and includes the majority of practical and tutorial teaching spaces for preclinical and some paraclinical disciplines. The building also houses the HR Carne lecture Theatre
- **McMaster Building (B14)** that houses Paraclinical Sciences offices and research laboratories, the diagnostic laboratory services (anatomic pathology and clinical pathology), a seminar room and a small teaching laboratory. Lockers, change facilities and toilets are provided for the female students in the basement of the building
- **Evelyn Williams Building (B10)** that contains the small animal teaching hospital known as the University Veterinary Centre, Sydney (UVCS). This is currently on the second phase of redevelopment. The building also contains the necropsy room, student surgery, general purpose seminar rooms and specialised clinical teaching facilities (eg image analysis)
- **Veterinary Science Conference Centre (VSCC – B22)** that houses the Webster lecture theatre, a series of tutorial rooms, and the Post Graduate Foundation in Veterinary Science

All five buildings in the veterinary precinct have written **safety protocols** and four are equipped with EWIS (Emergency Warning and Intercommunication System) Fire Alarm. There are written protocols for evacuation, but a special evacuation procedure has been written for the Evelyn Williams building which houses the UVCS. There are also specific policies are in place for potentially hazardous activities such as chemotherapy and radiotherapy. For the JD Stewart and McMaster buildings, air conditioning and extraction systems are installed in all areas that use formalin.

The **McMaster Annexe (B02)** is a minor building that houses laboratory animals under the control of Laboratory Animal Services. It has no direct role in teaching undergraduates.

In addition to those facilities located within the veterinary precinct, veterinary students have access to the main campus of the University of Sydney. **Main campus facilities** include lecture theatres (all can be booked online), libraries, computer laboratories and a wide range of sporting and social venues and student support services.

The **Camden Campus**, including the University farms, broadly consists of

- The large and small animal teaching hospital known as the **University Veterinary Centre, Camden (UVCC – C08B)**. Apart from clinical facilities, the UVCC also houses an on-line computer and tutorial Room for Year 5 veterinary interns, a necropsy room, and on site accommodation for 6 students on after-hours clinical duties
- The **Equine Exercise Physiology unit (C08L)** is a teaching and research unit used for investigation of performance based injuries in horses presented to the UVCC.

- The **JL Shute Building (C01A)** houses Farm Animal Health and Production research facilities and offices. It contains a desexing teaching surgery and wet space for teaching obstetrics.
- The **Shute Annex (C0B and C0D), formerly called 'Small Animal' and 'Large Animal' facilities)** contains 2 large wet laboratory spaces for teaching as well as office space. It also houses facilities for caged birds.
- The **General Teaching Building (GTB – C01E)** is adjacent to the Shute building and contains 1 flat lecture theatre, 1 general teaching space, one subdividable teaching space and a computer laboratory. After completion of the 250 seat lecture theatre in 2008 a conversion of the flat lecture theatre in the GTB to a dry laboratory is planned.
- The **Wildlife Health and Conservation Centre (WHCC - C01F)**, completed in 2007, houses a clinic and hospital designated for veterinary intern teaching and commercial activity, as well research offices. The UVCC will provide specialist support for the wildlife clinic.
- **Nepean Hall and Lodge (C05)** consists of a number of buildings for undergraduate and postgraduate student accommodation, catering and recreation.
- **Camden library (C15)** is a division of the University library system and also provides information retrieval facilities for students.
- The **Animal Reproduction Unit (C30K)** is a research and teaching facility and is situated near Cobbitty adjacent to the horse Unit.
- The **Horse Unit (C30G)** provides animal handling and reproductive training facilities for undergraduate students. It has approximately 30 teaching horses.
- The **MC Franklin Laboratory (C04)** is a research facility in dairy meat science.
- The **Poultry Research Unit (C06)** is associated with the Shute Building and provides teaching facilities for poultry husbandry. It has a group cage facility (1000 birds, 0-6 weeks of age) and a high rise layer building (4000 layers).
- **Mayfarm (C03)** is used for dairy cattle/sheep and pig teaching and research. The **Piggery (C16)** provides support for pig teaching.
- **Corstorphine Dairy (C07)** is a teaching and research facility, with 400 dairy cows that can be utilised for teaching purposes.

For more information see Standard 5: Animals and Related Resources (5.1.2 Animal Production).

In addition to the Camden farms the Faculty also has access to a University farm, **Arthursleigh (E24)** (about one hours drive south from Camden – E24), which is a working sheep station that is used for teaching sheep management practices, as well as wildlife health.

Please see figs. 3, 4, 5 and 6 in the Appendices section for this Standard for maps of the Sydney (Camperdown) and Camden Campuses.

3.1.2 Premises used for Clinics and Hospitals

The Faculty currently operates two major teaching hospitals (UVCS, UVCC). In addition there is a wildlife and exotics veterinary clinic associated with the WHCC, and which is linked to some central services in the UVCC. *Table 3.1 (located in the Appendices for this Standard)*, provides details of animal places available at the UVCS and UVCC.

3.1.3 Premises for Animals

Give a description of the facilities for rearing and maintaining normal animals for teaching purposes.

The Camden Campus has a series of farms and units that are used to rear and maintain normal animals for teaching, research and commercial uses. These include Arthursleigh, Corstorphine Dairy, Poultry Research Unit, Mayfarm, Cobbity Horse and Animal Reproduction Units, three piggeries, Shute building (aquaculture facility) and the Shute Annex (cage birds – 80 budgerigars and pigeons). Table 3.1.1: ***Land utilisation for grazing animals utilised for teaching at Camden*** *(located in the Appendices for this Standard)* shows the local animal grazing facilities available for reared and bought farm animals.

3.1.4 Premises used for Theoretical, Practical and Supervised Teaching

The same room should not be entered under two or more headings, even if it is used, for example, for both practical and supervised work.

Premises used for theoretical, practical and supervised teaching are presented in Tables 3.2, 3.3 and 3.4 *(located in the Appendices for this Standard)* as separate details for the Sydney and Camden Campuses. The Sydney campus, apart from facilities presented in the veterinary precinct, also has access to campus wide lecture theatres, tutorial rooms and computer facilities to ensure that requirements are met.

Health and Safety measures in place in the premises for practical work (and in the laboratories to which undergraduates have access.

Each building has evacuation plans on the walls of the building. There are first aid kits on all floors in all buildings. There are safety showers in the laboratories or just outside them. The Faculty arranges vaccinations for the students and staff for diseases such as Q-fever. There are special components of the units of study that deal with safety such as animal handling (small and large animals) and the physical lifting. Students are strongly advised about the protective measures such as correct footwear, lab coats, safety goggles and mesh gloves. There are material safety data sheets (MSDS) and Safe Operating Procedures (SOPs) in the laboratories.

3.1.5 Diagnostic Laboratories and Clinical Support Services

Facilities for Diagnostic Pathology

Diagnostic Pathology laboratories exist at both the Sydney and Camden campuses. Both offer comprehensive clinical pathology (including diagnostic microbiology and parasitology) and anatomical pathology services, and both have their own necropsy rooms that can accommodate small and large animals. Both laboratories provide services to UVCS and UVCC, research groups and private veterinary practitioners. The diagnostic pathology laboratories at Camden are part of the UVCC structure and under the control of the Director, whereas the diagnostic pathology laboratories at Sydney are distinct from the UVCS and have their own Director. The laboratories, although separated, have distinct synergies and provide support for one another. All histological sections are processed at the Sydney campus and second opinions on both anatomical and clinical pathology are provided by pathologists at both campuses. Academic pathologists, microbiologists and parasitologists contribute to interpretation at both campuses, and support full time service pathologists. In addition, technicians employed in both services provide cross-support, especially for haematology and biochemistry. As much as possible, clinical pathology machinery is duplicated at both laboratories.

Central Clinical Support Services

There are separate clinical services for both the UVCC and UVCS, but academic veterinary anaesthetists, radiologists, surgeons and clinicians, although primarily based at one campus, provide support for both.

UVCS

Anaesthesia has two full time registrars and a nurse, which are overseen by an academic anaesthetist. There are four induction stations in a dedicated 'preparation room'. There are 14 operational anaesthetic machines with isoflurane vapourisers, and a variety of ventilators, monitors and humifiers.

Diagnostic imaging has a full time radiographer and three specialist imaging consultants. There is equipment for routine radiology, ultrasound, videofluoscopy and myelography. CT and MRI scanning facilities are expected to be in place by late 2007.

Surgery has two full time academic surgeons, one registrar, one resident and two full time nurses. There are two operating suites.

The UVCS provides referral medicine and primary care services from 8am-7pm Monday to Friday and 9am-1pm Saturday. There is a 24 hour intensive care facility. The UVCS employs a full time pharmacists and has separate facilities for chemotherapy and radiotherapy.

UVCC

The anaesthesia service consists of 2 board certified anaesthesiologists, 1 board eligible anaesthesiologist and a nurse. At any time there is an anaesthesiologist assigned to small animals, one to large animals and the nurse and third anaesthesiologist float to pick up additional cases. There

is an anaesthesiologist assigned to after-hours emergencies. This person services both large and small animal departments. Anaesthesia also participates in emergency and critical care cases.

Diagnostic imaging has expanded to include MRI, Nuclear Scintigraphy as well as Digital Radiology and ultrasound. At present, imaging is performed by the veterinary staff in small and large animals. As the case numbers for Nuclear Scintigraphy and MRI expand, additional dedicated staff will be recruited. At present attempts to recruit a radiologist for Camden have been unsuccessful because of a shortage worldwide. There is a plan to recruit a trained human radiographer and develop a training program for a young veterinarian in imaging.

3.1.6 Slaughterhouse Facilities

Describe briefly the slaughterhouse facility to which the establishment has access, including distances from the establishment and level of activity.

At Camden, the MC Franklin Laboratory houses a simple abattoir facility that accommodates 15 students at a time (all students are expected to complete 5 days extra-mural placements at commercial abattoirs around Australia or elsewhere). There is a knackery (Luddenham Pet Foods) at Luddenham, which provides a service to the UVCC.

3.1.7 Foodstuff Processing Unit

Describe briefly any access that the establishment has to foodstuff processing units.

There are no operational food processing units on campus, but these are available at commercial abattoirs where students have to spend 5 days of extra-mural placement.

3.1.8 Waste Management

General waste is removed by contractors. Biological waste generated through teaching and research outside the hospitals is autoclaved and then treated as general waste. Cadavers and some non-hazardous biological waste generated through teaching and research and hospital activities are incinerated on site at 840 degrees C (both Sydney and Camden veterinary precincts have their own incinerators).

Clinical Waste (including sharps waste) generated through teaching and research activities and by the hospitals is placed into appropriately labelled yellow Clinical Waste bins and disposed of by a Contractor at a high temperature incinerator (1200 degrees C) off site. The nature of the disposal is recorded and this information is sent to the University Risk Management Office.

Radioactive animal waste generated through activities at the UVCS and UVCC is placed into hard appropriately labelled yellow bins contained in the lead holding cage system. When bins are full they are sealed weighed and level of radioactivity recorded. The bins are then transferred to a lead lined bin located in single purpose rooms remote from the main hospital buildings. Waste is stored in these facilities until radioactive levels diminish to a suitable level for transport (less than 5 microsieverts per hour). The waste then enters the Clinical Waste system as above.

Cytotoxic waste generated in the UVCS and UVCC is placed into hard, appropriately labelled purple cytotoxic waste bins, sealed and transferred to a Contractor supplied 240 litre purple bin. When this bin is full, the nature of the disposal is recorded on a Hazardous Waste request form which is then faxed to the University Risk Management Office who organise collection. The waste is collected by the off Campus Contractor and disposed of using appropriate thermal destruction as per the Draft NSW Safe Operating Procedures for Handling Cytotoxic Drugs and Related Waste Handbook approved by Workcover December 2006.

Hazardous substances and waste such as old photographic waste, old chemicals, chemical waste like used alcohols, xylene are removed by a university contractor as well as used radioactive substances which have decayed below required levels and have been certified by the user that they are below that level.

3.1.8 Future Changes

The Faculty of Veterinary Science is currently in a significant state of growth in facilities and equipment. Currently, the major focuses are redevelopment and expansion of both the UVCS and UVCC (driven by the University's Financial Sustainability Board) and continued development of the entire Camden Campus. The Faculty has a detailed, University supported, plan for the expansion of the Camden Campus, which will see the gradual movement of much of the paraclinical and clinical teaching (Years 3 and 4) from the Sydney Campus. This will require improved and increased hospital facilities, teaching space, and staff and student accommodation.

At Sydney, the second phase of redevelopment of the UVCS, involving the canine hospital, imaging and surgery facilities, is due to start mid 2007 and be completed early 2008. The UVCS provides an important component of the small animal intra-mural veterinary interns program for final year and will continue to be redeveloped through University and the Veterinary Science Foundation.

At Camden, the UVCC will have completed facilities for Nuclear Scintigraphy by the end of 2007. A new 250 seat lecture theatre, with supporting rooms, for the Camden Campus is due to be completed by May 2008, which will also see the conversion of a room in the General Teaching Building to a dry laboratory.

3.2 Comments

Adequacy of buildings and equipment for undergraduate teaching

Currently, the Faculty has adequate buildings and equipment for undergraduate teaching at the Sydney Campus. This is partly because the University allows the use of facilities outside the veterinary precinct. However, there is a need to upgrade the HR Carne lecture theatre (B19) and to continually replace computers and digital equipment. Additionally, it is imperative that the UVCS development plans continue on time and on track to ensure that clinical facilities are fully modernised to cope with increasing demands for veterinary student (intern) teaching and training.

The Camden campus presently has adequate facilities and equipment to cope with the demands for undergraduate teaching. With the completion of the new 250 seat lecture theatre in 2008, teaching facilities will be contemporary and ready to meet any increase in student intake. However, it is important that as the Faculty continues to move more and more teaching to Camden, facilities are expanded and improved and equipment upgraded. With further research development, this will strengthen the teaching by attracting a wider range of future staff applicants and students.

Maintenance of buildings and equipment

The Faculty has its own Facilities Committee that manages facilities in partnership with the University's central unit, Campus Properties Service (CPS) in accordance with University policies and strategic plan. CPS is responsible for the planning, development, maintenance and operations of the University's facilities. The facilities at Camden also are managed collaboratively with CPS, with advice from the Camden Farms Advisory Committee. Full details of University facilities policies can be found at *http://www.usyd.edu.au/fmo/projects/htm/extpolicyI-04.htm*.

The Faculty's Facilities Committee is not only responsible for maintenance of building and equipment but also oversees safety issues for the Faculty. It appoints maintenance, first aid officers and fire wardens for all buildings, and co-ordinates Faculty responses to injuries and hazards. Through a Faculty Facilities and Safety Officer, building maintenance and safety issues are co-ordinated and communicated to the Faculty Executive Committee and CPS. The Chair of the Faculty Facilities Committee is a member of the Faculty Executive Committee to ensure that there is appropriate risk management for occupational health and safety issues.

Laboratory safety standards

The Faculty is required to adhere to University policies, Gene Manipulation Guidelines and Australian Standards on laboratory and other safety issues. All laboratories within the university must conform to safety standards with regard to signs, procedures, management of hazardous waste, use of appropriate fume cupboards etc, as set out in the University's policy on laboratory safety that can be found at *http://www.usyd.edu.au/risk/policies/ohs/* The Faculty is also required to comply with both Federal and State legislation on Safety.

General safety standards

Health and safety in the University is facilitated by the Risk Management Unit which works with the

Faculty to:

- ensure safety standards are maintained and developed
- eliminate or minimise a threat before damage, accident, or injury occurs
- recover as quickly and cost effectively as possible in the event of an incident
- ensure the most effective injury management programs are in place

All buildings within the University are equipped with fire alarms and extinguishers. Each building has established and trained Fire Wardens, First Aid Officers, Safety Officers and other responsibilities (eg. Radiation officer, person responsible for hazardous waste etc) and these roles are identified by building on the Faculty's intranet *http://www.vetsci.usyd.edu.au/intranet/members/roles/*.

In 2002 the University introduced a new occupational health and safety risk management (ohsrm) program as required by the state Occupational Health and Safety Act. One aspect of this program is to actively identify hazardous jobs, assess the risks, and make sure that suitable risk controls are in place to prevent injury or mishap. Details can be found at *http://www.usyd.edu.au/risk/ohs_manual/ohsrm.shtml*.

OHS zone committees conduct regular inspections and assessment of safety issues. The Camperdown Campus is managed by the Zone 1 Committee and the Camden Campus by the Zone 9 Committee. Full details of the University's policies and procedures regarding safety across the university can be found at *http://www.usyd.edu.au/risk/ohs_manual/index.shtml*.

The Faculty also has its own Safety Manual, which is available on the Faculty intranet and during the site visit on request.

3.3 Suggestions

The Faculty has a wish list, based on the availability of funding from the University and from donations. These are presented in order of preference:

1. Development of a small animal surgical and clinical skills teaching facility at Camden
2. Expansion of the small animal facilities within the UVCC to allow a longer compulsory intra-mural rotation for Year 5 veterinary interns
3. Permanent video linking between the 250 seat lecture theatres at the Sydney and Camden veterinary precincts
4. Upgrading and expanding of student accommodation at the Camden campus (Nepean Hall and Lodge)
5. Initiation and completion of Stages 3 and 4 for the redevelopment of the UVCS.

Appendices Facilities and Equipment (Standard 3)

Fig. 3: Map of Sydney (Camperdown) Veterinary Precinct

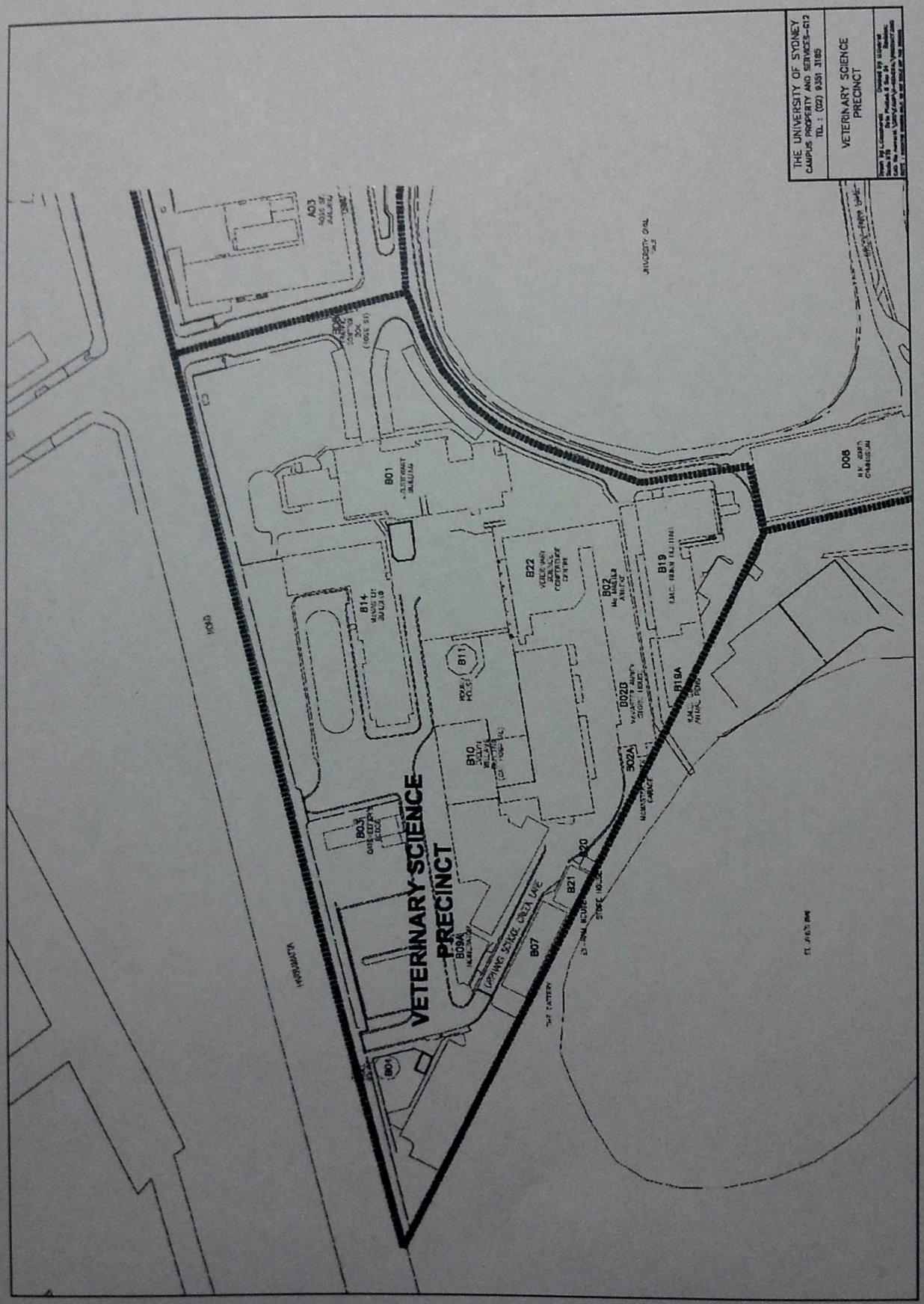


Fig. 4: Map of full Sydney (Camperdown) Campus



Fig. 5: Map of Camden Campus

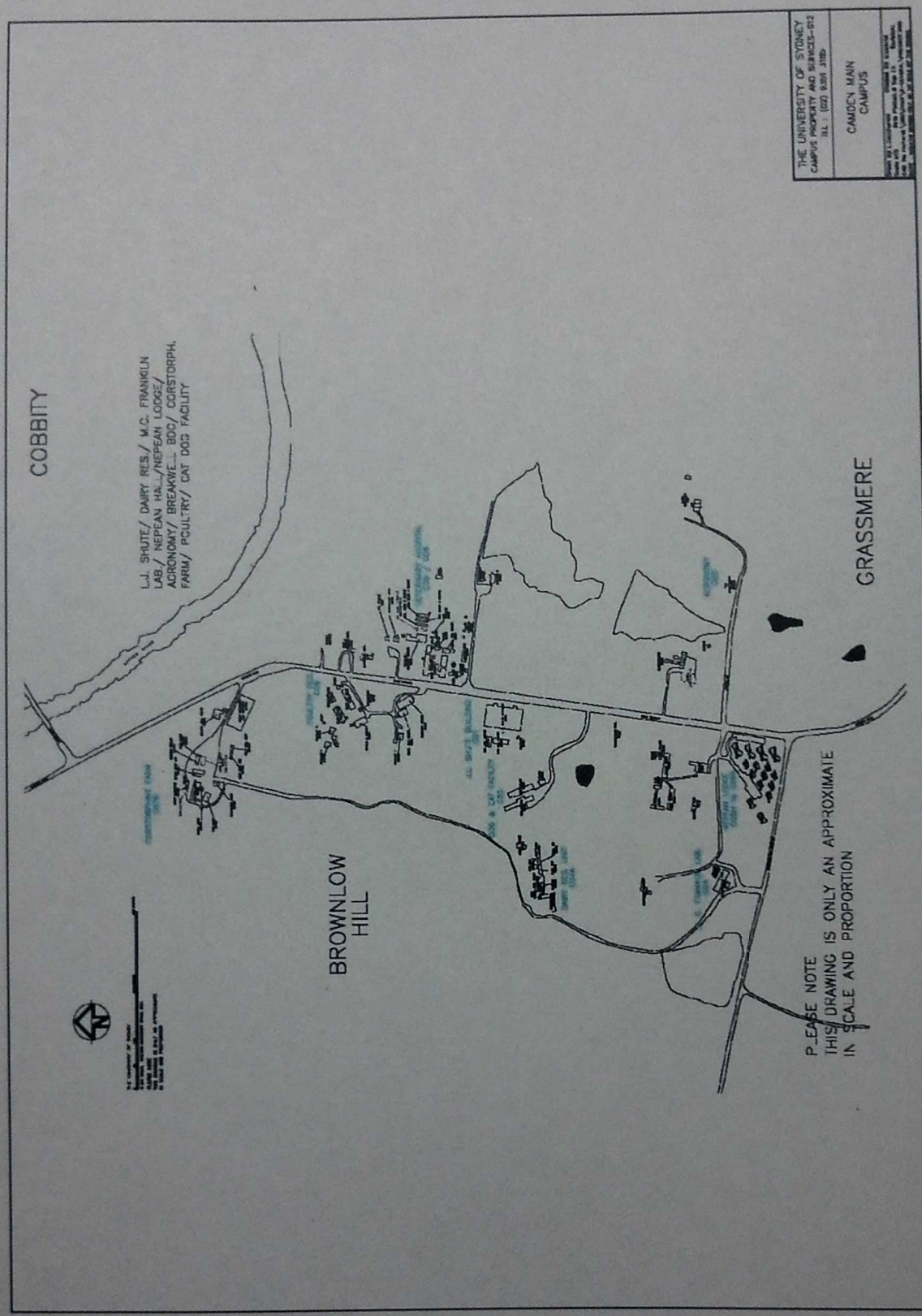


Fig. 6: **Map of the University of Sydney Camden Farms**

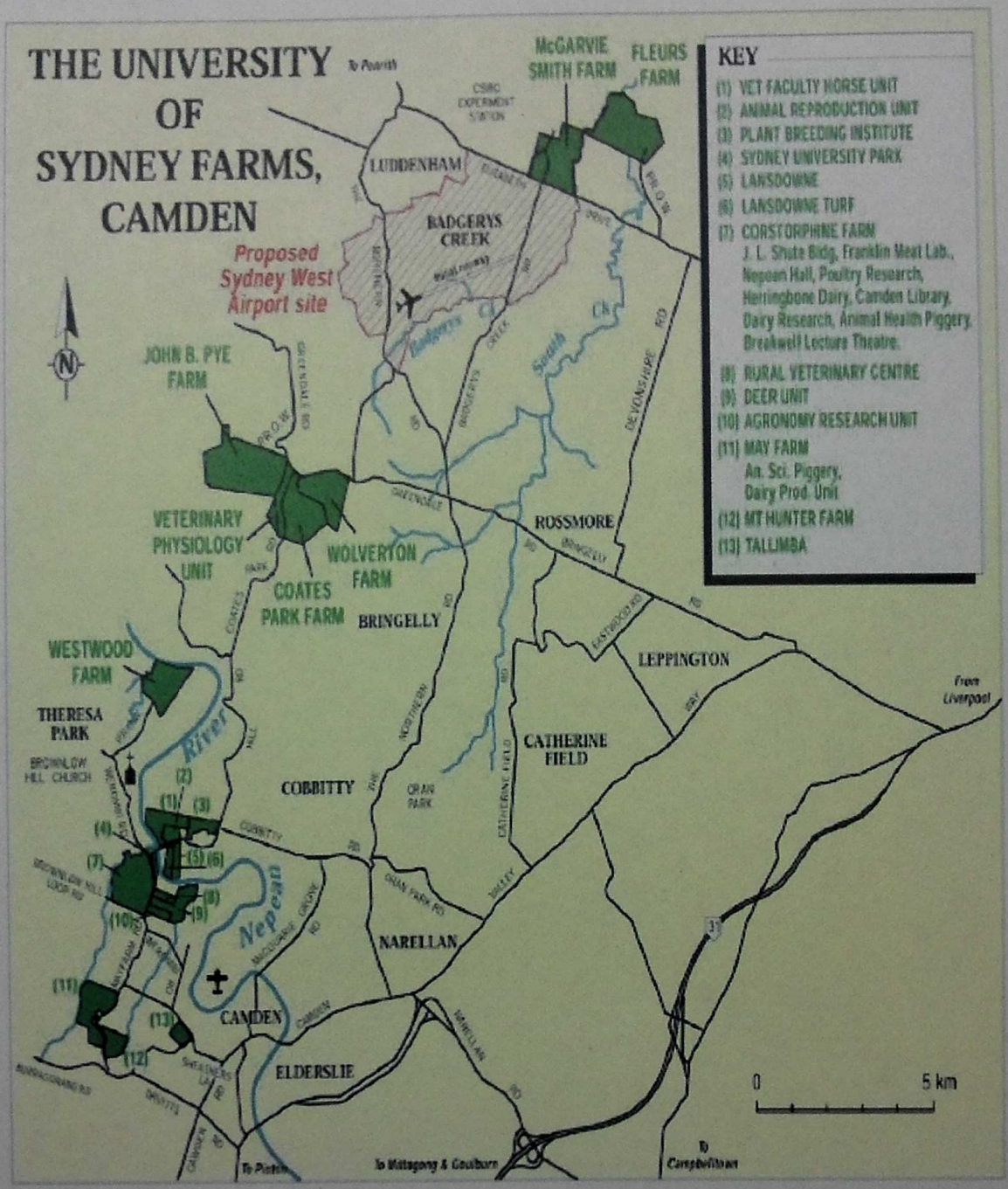


Table 3.1 Place available for clinics and hospitalisation

For University Veterinary Centres Sydney (UVCS)* and Camden (UVCC)	
Number of hospitalisation places for dogs	6 (UVCC), 51 (UVCS)
Number of hospitalisation places for cats	4 (UVCC), 31 (UVCS)
Number of hospitalisation places for cattle	4 (UVCC)
Number of hospitalisation places for horses	13 (UVCC)
Number of hospitalisation places for small ruminants	6 (UVCC)
Number of hospitalisation places for pigs	6 (UVCC)
Number of animals that can be accommodated in isolation facilities for:	
Small animals	4 (UVCC), 4 (UVCS)
Farm animals and horses	2 (UVCC)

** There is no provision at the UVCS for production animals or horses*

Table: 3.1.1 Land utilisation for grazing animals utilised for teaching at Camden

Name	Location	Area *	Main Usage
Mcgarvie Smith	Badgerys Creek	161.94ha	beef cattle
Wolverton	Bringelly	170.4ha	dairy cattle
Fleurs	Badgerys Creek	182ha	beef cattle
Coates Park Farm	Bringelly	115.2 ha	dairy cattle
JB Pye Farm	Bringelly	180.81 ha	beef cattle
Westwood	Theresa Park	94.54ha	dairy cattle
Horse and Animal Reproduction Unit	Cobbitty	83.37ha	horses, sheep, alpaca
Corstorphine	Camden	265.6ha	dairy cattle
Mayfarm	Camden	130.1ha	dairy cattle. pigs

** Farms are not used exclusively for teaching and can hold some animals for research*

Table 3.2 Premises for lecturing at the Veterinary Precincts at Sydney and Camden*

Number of lecture Theatres at Sydney: 3			
Location:	B01 – Clunies Ross	B22 - Webster	B19- Carne
Number of students Accommodated:	80	250	130
Total number of places at Sydney*: 460			
Number of lecture theatres at Camden: 1**			
Location	C01E – General teaching Building R104***		
Number of students accommodated	120		
Total number of places at Camden: 120			

*The Faculty also has access to other lecture theatres (over 15) outside of the veterinary precinct at the Sydney Campus. These hold in excess of 150 students and are booked online.

** There is also a 80 seat lecture theatre at the Plant Breeding Institute at Cobbitty

*** This is a flat lecture theatre and is to be replaced by a permanent lecture theatre, holding 250 students, in May 2008.The flat lecture theatre is then to be converted into a dry laboratory.

Table 3.3 **Premises for supervised group work (tutorial and computer rooms) at the Veterinary Precincts at Sydney and Camden***

Number of rooms at Sydney:13				
Location:	B01 – JDS, Loxton Flexible Teaching Space	B01 – JDS, R245	B01 – JDS, 'Bone Room'	B01 – JDS, R328
Number of students Accommodated:	65 (in 3 connected areas)	30	40	15
Location:	B22 – VSCC R102	B22 – VSCC R217	B22 – VSCC R218	B19 – Gunn, R223
Number of students Accommodated:	18	20	20	40
Location:	B19 – Gunn, R353	B19 – Gunn, R648	B14 – McMaster, R123	B10 – EW, R324
Number of students Accommodated:	30	35	40	25
Location:	B10 – EW R276			
Number of students Accommodated:	20			
Total number of places at the veterinary precinct, Sydney*: 398				
Number of rooms at Camden: 8				
Location	C01E – General teaching Building R103	C01E – General teaching Building R105	C01E – General teaching Building R106	C01A – Shute Building, Annison Room
Number of students accommodated	60	60	90 (sub-dividable into two 45 units)	15
Location	C08 – UVCC seminar and tutorial rooms	C03 – Mayfarm demountable	C30K – Animal Reproduction Unit demountable	C01F – WHCC meeting room
Number of students accommodated	40	30	15	10
Total number of places at Camden: 320				

** At Sydney, computer and tutorial rooms are available in other precincts and can be booked online*

Table 3.4 **Premises for practical work at the Veterinary Precincts at Sydney and Camden**

Number of laboratories at Sydney: 3				
Location:	B01 – Anatomy Dissection laboratory	B14 – McMaster, R141	B19- Lab A level 4	B19 – Betty Richards level 4
Number of students Accommodated:	125	20	60	90
Location:	B10 – EW, Necropsy Room	B10 – EW, Surgery Teaching Room		
Number of students Accommodated:	30	20		
Total number of places at Sydney: 345				
Number of laboratories at Camden: 4				
Location	C01A – Shute, N179	C01A – Shute, Obstetrics laboratory	Shute annex	C04 – MC Franklin meat laboratory
Number of students accommodated	30	15	45	30
Total number of places at Camden: 120				

Chapter 4 Library and Learning Resources (Standard 4)

4.1 Factual Information

The University of Sydney Library – General Description

Give a general description of the University library/libraries that are available to students. Indicate how the libraries are managed (e.g. library committees).

The University of Sydney Library, the largest academic Library in the Southern Hemisphere, is a network of 18 libraries located on 9 campuses. The collection consists of more than 5.5 million print and 73 000 electronic journals, 1 800 000 electronic texts and 250 scholarly research databases.

The Library provides high quality information services and resources to support students and staff in all teaching and research programs of the University. Through its services, staff expertise and programs the Library assists clients to develop skills for lifelong learning.

4.1.1 Library - Information anywhere, anytime

A wide range of resources are available to support teaching from both on- and off-campus sites and for courses taught in a flexible mode. The library's aim is, where possible, to deliver services and resources via the web, providing a 24 hour, 7 days a week access to information services and resources via the Library's web site at http://www.library.usyd.edu.au/Home.html

Staff and students from the Faculty of Veterinary Science may borrow from all Libraries and material is transferred between campuses on request. The Badham and Camden Libraries digitise high demand materials on unit of study reading lists for reading or printing, on- or off-campus via the Library Catalogue.

Core veterinary science collections are located in the Camden and Badham Libraries, however the Madsen (biochemistry, microbiology), Medical, Burkitt-Ford (Public Health), Fisher and Health Sciences Libraries are also frequently accessed. In mid-2008, a new state-of-the-art SciTech Library will open, providing 24 hour access.

The Library's Document Delivery service supports research and teaching for academic staff, honours students and postgraduate students by providing access to material held anywhere in the world. This service is funded by the Library and provided free.

Specialist information professionals; graduates in information science or librarianship; work in partnership with the Faculty to support research and teaching and provide a range of tailored services and individual assistance. Staff and students can contact their Faculty Liaison Librarian by phone, fax, mail or e-mail or discuss their inquiry in person at the Library or in the Faculty. Library staff contribute to Faculty committees and working groups; advising on information access and planning issues, knowledge management and information literacy.

Access to Web services is available on all workstations in the Library and via the Access Lab network in various locations throughout each Campus. In addition, enrolled students and staff may access and search ejournals and databases from anywhere in the world using their student identity card number. The Library supports the Faculty's clinical associates in practice by providing the full range of Library services free of charge.

Table 4.1 Main Library

Is this specific to the Veterinary Training establishment?
Badham and Camden Libraries also work with the Faculty of Agriculture, Food and Natural Resources and the School of Biological Sciences.

Is this common to two or more establishments?
No, the Library's primary function is for the staff and students of the University of Sydney.

State the library's annual operating budget over the past three years:

Year 2006/2007:	31.19 Million
Year 2005/2006:	33.17 Million
Year 2004/2005:	29.76 Million

Number of full time employees: 282.6
Full time equivalents of part time employees: not applicable

Number of journals received each year (in addition to books):
The Library has access to over 73,000 electronic journals and receives over 9,000 print journals.

Number of student reading places:
There are 3,654 seats available throughout all the Libraries. In Badham specifically there are 127 and Camden has 54.

Library opening hours:

	Weekdays	Weekends
During term time:	8am-10pm	10am/1pm- 5pm
During vacations:	8am-10pm	10am/1pm -5pm

The Library pursues an active policy of making core readings, texts, journals and databases available electronically so students can access them online at any time or day of the week

Number of loans to students per academic year: 20,512 in 2006

Library Resources for Veterinary Science - Overview

VEIN/ VIP

Launched in May 2001, the Veterinary Education and Information Network (VEIN) is the electronic gateway to information services for staff, students, and veterinary and animal scientists in the community. A partnership project of the Library, the Faculty, the Post Graduate Foundation in Veterinary Science and the Veterinary Science Foundation, VEIN provides:

- a platform for the collaborative creation of a rich knowledge resource; easy access to high quality scientific information / learning objects; ease of integration and a stable infrastructure for future developments; support for information literacy and access; support for curriculum development, transition into practice and lifelong learning.
- tailored access to research databases, high quality web resources, learning objects, information specialists and publications for staff and students.

Academic staff in the Faculty are working with the specialist information professionals in the Library to build rich electronic collections of excellent materials to support teaching and learning. Course materials are linked to VEIN, providing an accessible integrated learning environment. http://vein.library.usyd.edu.au/

During 2007 the Vein resource has undergone significant redevelopment so that all learning objects have been databased as individual learning resources with attached metadata for enhanced searchability. This new development allows the same resources to be searched and presented in a variety of different contexts specifically designed for the end user. With this innovation a renewed focus is on delivery of resources in a unit of study context. This redeveloped resource can also be viewed by the public listed within a discipline context and has been renamed the 'Veterinary Information Portal' (VIP) to reflect the new paradigm of focus of library and information resources.

Information literacy training in the curriculum
An embedded information literacy program has been implemented with the new curriculum that supports students to develop information skills to equip them for the knowledge economy of the 21st Century. This program is continuously reviewed to ensure it meets the requirements of the students and the Faculty. Training courses are offered in finding, synthesizing, managing and using high quality information, focusing on the skills essential for the life-long learning graduate.

Academic credentials of the librarian in charge
Specialist staff and services
The Life Sciences Libraries Team, a sub-group of the Sciences and Technology Team, serves the Faculty of Veterinary Science and two other Faculties at the University. The team currently consists of 5 tertiary qualified Librarians, 5 TAFE qualified Library Technicians and 3 Library Assistants. A group of 12 casual staff also provide essential support services in the Life Sciences libraries – some of whom also hold library and information science qualifications. The Librarians in all libraries of the University of Sydney hold tertiary professional qualifications recognised by the national industry body, the Australian Library and Information Association (ALIA). Specialist Faculty Liaison Librarians work in partnership with staff and students to support learning, teaching and research.

4.12 Information technology services and learning resources

Table 4.2 (a) Audiovisual service

Please see Audiovisual Service below.

Table 4.3 (b) Computer service:

Is the computer service/ department:	
-specific to the veterinary training establishment?	Yes, with centralised support as required
-common to two or more establishments?	As above.
Number of fulltime employees:	2 IT Support, 1 Web Designer, 1programer
Full time equivalents of part time employees:	0.2 Part time ICT support, 0.4 e-learning support (to be expanded)
Number of computers available in service: (staff and students)	
less than three years old:	384 (75 student computers)
more than three years old:	219 (15 student computers)
Do students have free access to these computers for their own use/s?	
Yes, free access to computers in their respective laboratories/offices.	
Is there a computer room for self-use by students?	Yes.
Computer rooms are available on both Camden and Sydney campuses	
If there is: please indicate:	
-number of places:	2 computers Labs, 5 Small Group Teaching Labs
-opening hours:	Weekdays / Weekends
During term time:	7:45 ~ 17:15 pm / closed for Sydney
During vacations:	7:45 ~ 17:15 pm / closed for Sydney
	Swipe Card 24 X 7 access for Camden
Does the service/department provide teaching in the use of computers?	Yes.
Students also have access to central helpdesks for ICT and e-learning support	
Does the establishment use interactive software for teaching?	Yes. (see 4.3.2- e-Learning Resources)
If so how many programmes are available?	(see 4.3.2- e-Learning Resources) Web based delivery of e-learning resources

Computers/networks for staff and students

The Faculty of Veterinary Science maintains 2 large student computer laboratories and 5 small group teaching rooms equipped with computers and printing facilities. The Sydney campus computer room houses 45 computers and was opened in 2006 and the Camden computer room houses 30 computers and was opened in 2007. In addition to this, computer facilities are also available within both clinics for access by senior students during intramural rotations.

On the Sydney Campus, after hours access is also available through the network of Computer Access laboratories and libraries. Local desktop support is available on both campuses during normal office hours with additional support available through the Information Technology Services Helpdesk.

4.2 Comments

Library;
Please comment on the adequacy of the books and journals, of the opening hours and of the provision of reading spaces and support personnel.

As the largest library in the Southern Hemisphere the University of Sydney library has an enormous collection for use by students. The opening hours on the Camperdown campus are adequate and the collection is able to support the curriculum. The Camden Campus library has limited hours due to the number of students but has extended its opening hours past normal office hours two nights a week to enable greater access. The large number of journals available online is also significant in that it allows 24/7 access to this material. The availability of reading spaces and support personnel has not been identified by students as an impediment to their access to library resources.

IT Facilities;
Please comment on the establishments approach to self-learning, on the adequacy of the provisions and on any limitations on the further developments in this area.

e-Learning Resources

Approach to self learning

The general approach to self learning can be placed into 2 categories:

a) provision of resources in a unit of study context.
b) provision of authentic case-based learning activities.

a) Provision of resources in a unit of study context.

WebCT is the learner management system used by the University of Sydney and all units of study in the BVSc degree have a unit of study site that may include lecture and reference materials, quizzes, self tests, discussion boards etc. VIP will also deliver high quality web links and reference materials with a unit of study context and can be linked from WebCT. Images may also be grouped together in OLIVER (see below) to be utilised in units of study.

b) Provision of authentic case-based learning activities.

CaseBuilder (and now ResourceBuilder - see below) were designed to enable staff to generate authentic case-based learning activities that may also include journaling functions for subsequent tutorial discussion, budgetary constraints of tests or diagnostic procedures undertaken and can be linked to other resources such as reference materials in VIP and images in OLIVER. These cases are typically linked to by students through WebCT which manages group access or activities to enrich the blended delivery/ learning model.

OLIVER (Online Library of Images for Veterinary Education and Research)

In order to improve and integrate web based learning, case studies and didactic presentations for veterinary and animal science students, an online library of images and other learning objects for use by academics in the Faculties of Veterinary Science and Agriculture was established. OLIVER contains images relating to many facets of Veterinary Science that are annotated and supported by search engines which allow the rapid access of both images and relevant information. The website is easily updated and adapted as required. There are currently over 11,200 images. In 2007 this resource will be migrated to a faster server and a

survey of staff and students will be conducted to identify enhanced functionality that can be implemented as part of the migration process. New resource platforms like ResourceBuilder also automate the inclusion of OLIVER images into case based learning activities.

Resource Builder
ResourceBuilder is an online, form based platform which enables academic staff and senior students to generate complex case-based learning activities that can be undertaken by individuals or groups of students. These cases are typically used as a component of formative assessment or as a learning activity in a blended delivery context, although some summative assessment has been conducted using this platform also. There are a number of education models and functionalities available and new models can be generated directly by academic staff with little training or support. This platform also encourages leverage of other image and learning object repositories like OLIVER and VIP.

WebCT and Other e-learning resources
The facility for delivery of online teaching and learning resources via the WebCT platform became available at the beginning of 2001. This emphasis on introduction of on-line learning in association with the new curriculum has resulted in all units of study within the BVSc degree program being supported by a WebCT unit of study site as of 2004. Administrative and technical assistance have been provided at both the University and Faculty level to assist the development and maintenance of these online teaching and learning resources.

The importance of on-line support of teaching and learning has been highlighted by the appointment of a Sub-Dean for Information and Communication Technologies in Teaching and Learning in June 2004. The role of the Sub-Dean ICT in T&L is to coordinate activities of key groups in the Faculty (Thyne Reid Unit, Oliver, VEIN) and help set strategic directions to ensure sustained growth and quality delivery in these initiatives.

With the assistance of the Thyne Reid Unit, significant advances have been achieved in the blended delivery of case-based learning activities across the curriculum and in the support of students in Year 5 clinical rotations through the Year 5 Virtual Campus initiative.

Audiovisual Service
We currently have a limited audiovisual support service used to support media production of clinical and research content used in teaching in learning. Video editing services are also provided for both campuses and a range of productions have made using the equipment.

The Faculty A/V unit supports all units of study and is a faculty wide resource available for use by any academic or member of staff. Recent projects produced include:

- 19 clinic cases for medical records and teaching,
- 20 lectures from the Veterinary Conservation Biology course for new member of staff,
- 4 new full length teaching movies for Animal Handling, Dental, Feline Physical Examination and Feline Blood Pressure.
- Digitised old video tape teaching movies for the Camden Spey Clinic and Year Surgery teaching.

Importantly this unit aims to provide access to these resources via the web where possible so as to provide 24 hour access for students to multimedia resources.

Adequacy of ICT and future developments

In October 2006 an **ICT student survey** was conducted to assist in understanding the ICT infrastructure requirements, e-learning conceptions and learning behaviour of students with the Faculty of Veterinary Science. A series of questions investigating the e-learning conceptions of students was informed by an initial focus group of 15 students and based on questions from the e-Learning Focus Group Project coordinated by the University ICT & e-Learning Working Group.

A total of 151 students responded to the ICT survey. Possibly indicating the types of assessment students are exposed to, the e-learning resource identified by ~95% of students as the best in supporting learning was the provision of lecture notes. This was also the main response to the question asking what resources students would like to see more of, and was also considered as a required resource type for the minimum standard of eLearning

resources that should be available for all units of study. In explaining why lecture notes were so important the theme of examination preparation was highlighted. The undirected use of discussion boards and OLIVER were seen as major activities that did not effectively support student learning. While training in the use of on-line resources was not considered as a major concern for students, the access to computers on campus and the availability of free internet access (sites outside the University network) in the Loxton Flexible Teaching Space was highlighted as a major concern to a majority of students (*NB. Students now have free access in these computer facilities*). In contrast to the concerns over on-campus access almost 70% of students nominated home as the primary location for accessing on-line resources with ~50% of students using laptops (50% desktops), and 60% of students with computers < 3 years old. 78% of students indicated that they had broadband access of some type (only 15% were on dial-up connections). Perhaps as a result of the high connection speeds available to most students only 8% of students responded that they always had difficulty with prolonged download times with 41% saying that they never had a problem with downloading online resources. Approximately 82% of students reported that they used online resources everyday or at least 3-4 times/ week with ~85% of students expecting to study 1-2 or more hours/ unit/ week on-line. Interestingly, over 70% of students report that they would consider bringing in their own computer for use in lectures if wireless access were available (*NB. Free wireless internet access is now available on the Sydney campus).*

4.3 Suggestions

The main focus of ICT and e-Learning support within the Faculty following establishment and deployment of advanced e-learning platforms is to consolidate the best practice use of these learning support models more widely within the curriculum and to assist users to optimise student learning experience. The redeployment of a general staff member with e-learning experience has enabled this process to begin and will be a significant undertaking for 2007, 2008 and beyond.

We are also interested in leveraging the e-learning models developed within the University of Sydney to enable us to negotiate for access to other e-learning systems outside the Faculty or in other Faculties of Veterinary Science.

Chapter 5 Animal and Related Resources (Standard 5)

5.1 Factual Information

5.1.1 Basic Subjects

Anatomy

Indicate the materials that are used in practical anatomy training, and how these are obtained and stored.

Students in the BVSc program undertake a variety of units of study with anatomy teaching in Years 1 - 2 including Veterinary Anatomy & Physiology (VAP) 1A, VAP1B, VAP2A, VAP2B; Equine Anatomy; Animal Digestion & Nutrition and Veterinary Conservation Biology. The gross anatomy teaching program includes a large dissection component. During the first 2 years of the curriculum, each student, working as part of a dissection group (3-5 students), dissects the musculoskeletal system of one preserved greyhound (VAP1A), the cardiovascular system of a second preserved greyhound (VAP1B), and the nervous system of a third preserved greyhound (VAP2A). Each dissection sequence will take five to eight 2 hr practical classes. Each student, as part of a group of ~12 students, spends 52 hrs learning the regional anatomy of the horse, based on dissection of whole preserved horses (Equine Anatomy). Each student, working in groups of ~3 students, dissects the anatomy of the chicken in a single two hour practical class (VAP2A). Each student, working in small groups of 3-5 students, dissect the following fresh (non-preserved) dog cadavers: one for respiratory system (VAP1B); one for digestive system (VAP1B); one for male genital system (VAP2B); one for female genital system (VAP2B). Each dissection takes 2 hours. Dogs for these fresh classes are from a variety of breeds. Each student attends demonstrations of the gross anatomy of the fresh isolated digestive system and head (Animal Digestion and Nutrition), isolated male reproductive system (VAP2B), and isolated female reproductive system (VAP2B) of cattle, pig, horse and sheep, and has similar exposure to the mammary glands of ox (VAP2B), supplemented with museum pots of prosected specimens) and the gravid uteri and placenta of all domestic species (VAP2B).

Each student, working in small groups (3-4), studies live animal topographic anatomy of ox (Animal Digestion and Nutrition) and horse (VAP2B) based on two 2 hr practical classes at Camden, where the students palpate surface features and revise the position of the abdominal viscera. Live animals for topographic classes are held at the University's Camden campus, as part of the Horse Unit and the Dairy Unit, and are also used in other undergraduate teaching exercises in later years.

There is limited exposure to the anatomy of the cat. Students are able to view prosections of the reproductive system of cat as part of the VAP2B classes. There are two practical classes on the gross anatomy of native fauna, taught as part of Veterinary Conservation Biology: one covering reptiles and amphibians, which is based on prosected preserved museum specimens and skeletal preparations, the other covering native monotremes and marsupials, based on prosected fresh cadavers and some preserved material.

Greyhounds are supplied by local pounds and private practitioners working in the greyhound industry, and are supplied freshly euthanized. They are transported to the Faculty and perfused on site with embalming fluid through the cardiovascular system. Non-descript fresh dogs and cats are supplied by local pounds, and are supplied freshly euthanized. Some are used in classes fresh, but most are frozen for storage on site, and defrosted as needed. Horses for Equine Anatomy are supplied alive by a commercial pet meat supplier and anaesthetised, exsanguinated and perfused at the Faculty. Chickens are supplied freshly dead, either from the Faculty's poultry unit at Camden or from commercial chicken production units, as cull birds. Isolated digestive and reproductive viscera from production animals are mostly supplied by the same commercial pet meat supplier that we use for horses, and are obtained as a by-product of animal slaughter for fresh pet meat. Occasionally, fresh viscera

are obtained from commercial abattoirs, but those abattoirs close to the city have largely closed. Preserved reptiles and amphibians are borrowed from the collection of the Australian Museum. Fresh monotremes and marsupials are supplied by local wildlife rescue groups, such as WIRES, from animals that were euthanized due to their injuries, or were freshly killed on roads. A few kangaroos are occasionally purchased from commercial shooters to make up any shortfall.

Indicate the nature and extent of any additional sources of material for the teaching of necropsies and pathological anatomy, including slaughterhouse material.

All students spend a morning at the Elizabeth Macarthur Agricultural Institute diagnostic laboratory during their Ruminant Health and Production Rotation. The students work through laboratory with the duty pathologist (p*lease see table 5.1 located in the Appendices for further details*). In addition, students must undertake 5 days of extramural training in a commercial abattoir under the supervision of an AQIS veterinarian.

Indicate the nature of any other animal use in teaching other basic subjects.

Two units of study have a particular focus on animal handling in Year 1: Animal Husbandry 1A and 1B that are offered during the first year of the undergraduate program. Both require students to develop an understanding how the various husbandry and management techniques can affect animal welfare and animal production. Animal Husbandry 1A comprises 28 hours of lectures and 16 hours of practical classes and it covers aspects of dog, cat, horse, pig and bird husbandry and handling. Animal Husbandry 1B comprises 30 hours of lectures and 62 hours of practical classes and covers aspects of ruminant management, production and handling, especially sheep, beef and dairy cattle. Students are then encouraged to further practice their animal handling skills during the extramural in-house animal handling week at Camden at the end of Year 1, during the Educational Support Practice (ESP) visits in years 1 and 2 and during the Animal Husbandry extramural placements after Year 2. Assessment of these basic skills is then performed in Year 4 for dogs, cats, horses and ruminants prior to the commencement of clinical rotations, with remediation of students with unsatisfactory handling skills.

Before Year 4, students are required to develop a set of `Basic Skills' (*available during site visit upon request*). Students are advised that they should sign the declaration on each `Basic Skills' form for each species, stating whether they are 'aware of', have 'observed', have 'done', or are 'competent [in]' each skill. Each list indicates the required level of proficiency that each student should attain by the beginning of Year 4. A list of further skills, labelled 'Further Clinical Skills', (*available during site visit upon request*) is provided as an indication of skills which the Faculty will expect students to learn in Years 4 & 5. After the completion of the extramural placements, students are assessed to evaluate the level of proficiency gained. In 4th year (semester 8), face-to-face remediation is offered to students who have been identified as unsatisfactory animal handling during the practical assessments, followed by reassessment within the appropriate unit of study e.g. Ruminant Health and Production.

Practical classes and assessment of pig handling is performed in Semester 1 (Animal Husbandry 1A). After a demonstration, students develop their skills as they work in pairs. Assessment of poultry handling is performed in Semester 2 (Animal Husbandry 1B). A group of activities are offered at three different stations (10 students per group): focusing firstly on egg collection and assessment of egg quality and then removal birds from cages and restraint for non-invasive interventions and invasive procedures. For pigs and poultry face-to-face remediation is offered to students at end of each class when skill levels become apparent.

5.1.2 Animal Production

Indicate the availability of production animals for the practical teaching of students
(a) on the site of the institution:

The Camden Farms provide enviable facilities for teaching and research in animal disease and science in production animals. The 1200 hectares of farmland encompass a dairy and research unit, (with 5 bulls and approximately 400 cows), a horse unit (with one stallion and

approximately 40 mares), sheep unit (with 25 rams, 250 ewes and 20 alpacas), pig unit (with 8 boars and 40 breeding sows and approximately 400 pigs of varying age) and poultry units (with numbers of layers varying between 400-1000, 200-300 broilers and additional small numbers of turkeys (n=10-20) and ducks (n=10-20) that are incubated specifically for practical teaching sessions to emphasise species differences in conformation handling and restraint) and associated laboratories. The University of Sydney operates a dairy farm (Corstrophine, located in the Camden campus with 400 cows, 5 bulls and 400 calves of varying age; a sheep dairy farm (May Farm, located in the Camden Campus: 300 ewes, 100 wethers and 400 lambs of varying age) and a sheep and beef farm (Arthursleigh, located at Marulan near Goulburn: 300 beef cattle and 15,000 sheep). The farms are operated commercially and used for teaching and research in animal husbandry, animal science and pasture agronomy. The realities of commercial production are retained to ensure that students are conversant with the peculiarities of various stages in production cycles.

Students also have access to McGarvie Smith Farm (200 breeding cows) during their final year clinical rotation at Camden. Students can palpate cows to determine pregnancy and treat sick cows. Examples of visits include examination of cows with paspalum staggers, pregnancy toxemia, investigation of trace mineral status and artificial insemination.

Units of study where these animals are extensively used include:

Bird Health & Production: the aim of the unit of study is to develop knowledge and skill in bird medicine. Emphasis is placed on the epidemiology, management and preventive medicine of intensive and extensive bird populations. Some of the technical skills that students develop in this unit of study are: animal handling (remove a bird from a cage and restrain for physical examination), egg quality (demonstration of egg breakout), vaccinations (eye drops, wing web, sub-cutaneous, intra-muscular, in-water, aerosol), blood collection (brachial, jugular, heart puncture), euthanasia (cervical dislocation, injection, CO2 gas) followed by followed by anatomy dissection, reproduction (semen collection and artificial insemination), and incubation (hatch breakout case study). Birds from farms which have died naturally are available for pathology examination. Students have 15 hours of practical classes with a bird:student ratio of 1:2.

Horse Medicine & Surgery: this course is designed to assist the student in learning effective problem solving skills, determination of differential diagnoses and the judicious use of appropriate diagnostic aids when attempting to reach a diagnosis of equine cases. Options and approaches to commonly used therapeutic measures are included also. Areas of emphasis in the course include lameness, respiratory diseases, abdominal pain (colic), weight loss, diseases of foals, ophthalmology, reproductive management, dermatology and various other aspects of equine surgery and internal medicine. Practical classes include 36 hours.

Pig Health & Production: this unit of study provides hands on experience (2 x 4 hours prac) in pig handling and some relevant veterinary procedures such as: blood collection, catching and restraint, ear vein catheterization, pregnancy testing, condition scoring, backfat testing. Each student conducts a necropsy on a pig. Dead pigs are sourced from a nearby commercial pig farm.

Ruminant Health & Production: this unit of study provides hands on experience with cattle and sheep. Cattle reproductive examination and pregnancy diagnosis includes a viscera practical class (2hr) at the commencement of the rotation to refresh students' memory on the anatomy of the female reproductive tract of the cow. This practical class is followed by 8 pregnancy diagnosis sessions (2 hours each) where student, after selecting and restraining the cow adequately, proceed with the rectal examination. Bovine manipulations include sampling, artificial insemination, treatment and bull soundness practical classes. These classes (14 hours) offer the opportunity to advance students basic cattle handling skills and learn the fundamental skills of: clinical examination and sampling of blood, milk, urine etc for investigations, artificial insemination techniques, common treatment techniques such as epidural analgesia and surgical approaches and bull breeding soundness examination. During the sheep rotation students develop relevant skills in conducting a complete physical and reproductive examination, wet and dry examination of ewes, collecting blood and faecal samples, identify lameness and examine and grade for footrot, conduct a necropsy, conduct worm egg count on faeces and parasite count on abomasal and intestinal contents. This is achieved through a whole day excursion (8 am 5 pm) to Arthursleigh Farm, 10 hours of

practical class at the Reproduction Unit and a 4 hours prac at EMAI (necropsy) + 2 hours follow up tutorial. Students also develop skills in reproductive technologies such as semen collection, handling and evaluation, oestrous synchronization, artificial insemination, multiple ovulation and embryo transfer (MOET).

(b) on other sites to which the institution has access:

Undergraduates are encouraged to practice their handling skills during their extramural support practice placements (a mandatory element of the Professional Practice units of study in Years 1 and 2), during extramural Animal Husbandry placements and during their final year clinical rotations. The extramural Animal Husbandry placements aim to develop many of these attributes and in particular those relating to Animal Management and Professional Practice. Specific aims are: to enable students to master animal handling and manipulative techniques, to introduce students to activities in the various animal industries and practical management problems and to develop effective professional standards of behaviour and to develop effective working relationships with members of the (rural) community engaged in animal industries. The minimum compulsory period of extramural experience in Animal Husbandry is 25 days (horses: 5 days; dairy cattle: 5 days; beef cattle: 5 days; sheep: 5 days; pigs: 3 days; poultry: 2 days) and students may only commence this work after successful completion of Year 2. There is no formal requirement for extramural practical experience with dogs and cats but students are strongly encouraged to voluntarily gain experience with these animals. In addition, animal handling skills are tested as part of the Year 1 and 4 curriculum. An additional 4 weeks of work may be performed at the student's discretion, e.g. brushing up particular animal skills, work with wildlife, at veterinary clinics, etc. No provision is made in the minimum period for work with native fauna, zoo animals, marine animals, or other exotic species. Students are encouraged to voluntarily gain experience with such animals if possible, but such periods of work cannot be substituted for work with the major domestic species.

During Year 5 each student (intern) must complete at least 5 extramural rotations in addition to 4 intramural rotations (9 units of study). A minimum of 2 of the external and 1 of the internal rotations is focused on large or production animals. This will be increased to 2 internal units in 2009. At these Extramural Practices students encounter a wide range of disease conditions in production animals, and they also gain insight into how these are managed by veterinarians operating in different roles at local, regional and state levels.

5.1.3 Food Hygiene

Indicate the availability of animals and products of animal origin for the practical teaching of students in food hygiene, inspection and technology.

Essential knowledge and skills in veterinary public health are gained incrementally over the 5 years of the degree. Base knowledge of physiological and disease processes comes from units of study in Years 1 to 3 such as Principles of Disease, Pathology, Microbiology and Parasitology. Semester 2 of Year 3 challenges students to apply this knowledge as well as develop more applied knowledge within units of study taught during this semester such as Veterinary Public Health (VPH) and Animal Disease. In these units of study, students explore issues and make decisions within case scenarios relevant to food safety and hygiene. In addition, the unit of study VPH, is designed specifically to provide students with knowledge of epidemiology, food safety and zoonoses. This knowledge is then applied and extended in Year 4 in Farm Animal Health and Production units taught at Camden and in aspects of Companion Animal Medicine and Surgery. A number of practical classes are scheduled and attendance is compulsory. These classes focus on abattoir structure and function, veterinary aspects of abattoirs and occupational health and safety. Cattle, sheep and pig viscera are sourced from various abattoirs and having common gross lesions that are seen at the time of slaughter. This is supplemented with images and several case studies so that an understanding of the disposition of the carcass and product can be contextualised. Four culled aged sheep are used for the meat inspection class to identify the location of lymph nodes. These classes are preparation for the compulsory 5 day visit to an abattoir undertaken in the extramural period of Year 4. The abattoir placement builds on food safety knowledge delivered in VPH and provides actual experience of the issues related to ensuring

animal welfare and consumer safety. During Year 5 students experience veterinary public health issues hands-on during their rotations at the University Clinics and at Partner Clinics. In particular, 2 extramural rotations – Rural Mixed Practice-2 and Rural Public Practice - provide students with an opportunity to apply and enhance their VPH knowledge and skills to real-life situations affecting animals, livestock producers and the community.

5.1.4 - 5.1.5 Consultations and Hospitalisation

See tables 5.2 and 5.3 within the Appendices for this Standard.

5.1.6 Consultations

State the number of weeks, in the course of the year, during which the clinics are open:

The University Veterinary Centre on the Sydney campus (UVCS) and the University Veterinary Centre on the Camden campus (UVCC) are open for consultations for 51 weeks of the year. Both clinics are closed for one week during University Christmas shutdown.

State the number of consultation days each week:

UVCS and UVCC: consultations are available 6 days of the week Monday to Saturday.

State the consultation hours:

UVCS: Monday to Friday: 8am-7pm; Saturday: 9am-1pm; Sunday: Closed. UVCC: 8am-5pm Monday, Wednesday, Friday; 8am-6.30pm Tuesday and Thursday; 8am-12noon Saturday. On Sunday an after hours emergency service is provided.

Please see Tables 5.2 and 5.3 within the Appendices for details on consultations and hospitalisation.

5.1.7 Vehicles for Animal Transport

State the number and nature of the establishment vehicles that can be used to bring sick animals to the clinics:

The UVCS and UVCC do not offer an animal ambulance service.

State whether or not clients are charged for this service:

Not applicable.

5.1.8 Emergency Service

Outline what in-house emergency service is available.

At the UVCS, cases requiring emergency veterinary care outside of regular consulting hours are referred to nearby 24-hour emergency centres: Animal Referral Hospital, South Strathfield; The Veterinary Specialist Centre, North Ryde; North Shore Veterinary Specialist Centre, Crows Nest. At the UVCC and the new Wildlife and Exotics Clinic at Camden a 24 hour emergency service is run for all animal species (small animals, ruminants, horses and exotics) 7 days a week.

5.1.9 Mobile Clinic

The UVCS does not run a mobile clinical service at this time. The UVCC has a mobile clinic for ruminants and horses.

State the number of hours of operation per week.
Indicate arrangements for out-of-hours emergency services.

The ruminant clinicians run a mobile service for 168 hours per week within working hours. Both the ruminant and equine groups run a 24hr, 7 day a week service. The after-hours roster is covered by clinicians within these groups.

State the number, the type and the seating capacity of the vehicles used to transport students working in the mobile clinic.

There are 2 extended cab utility vehicles. Seating for 4 students each; 1 station wagon seating for 4 students.

State the approximate number of sick animals (specify cattle, pigs, equine, poultry or small ruminants, others) seen by the mobile clinic in a year.

A large proportion of population medicine is based on examining groups of animals, assessing performance, and averting disease. The Ruminant production group provides services for approximately 3500 lactating dairy cows, small hobby farms around Camden, and 1600 beef breeders. The breakdown for ambulatory call for equine cases (most of which would be single animal) is for 2005 (673), 2006 (554) and 2007 (year to date 125).

State the average number of visits in a year made by the mobile clinic to farms and studs for cattle, pigs, equine, poultry, small ruminants, others.

There are approximately 1,000 visits per year, most of which are conducted by the ruminant production group.

5.1.10 Other Information

Indicate any notable additional outside sources of material for clinical training purposes, such as animal charities, animals awaiting slaughter, etc.

Indicate how the level of clinical service that is offered by the establishment (in small companion animals, equines and production animals) compares with outside practices in terms of facilities, hours of service, equipment, expertise, responsiveness, etc.

At the UVCS and UVCC we offer high quality first opinion and referral services. The hours of service are typical for an city practices (the UVCC could be classified as an outer city, mixed practice). The expertise available at both clinics is broader than nearby practices. Internal and external referrals are offered in internal medicine, surgery and dermatology. We also have specialist imaging (radiology/sonology) services and dedicated anaesthesia teams to support the other services. The equipment available at UVCS and UVCC is superior to that available in local first opinion practices and some private referral practices. We have facilities for radiography, image intensification, ultrasound, BAER testing, ECG, fibreoptic and video endoscopy, laparoscopy and arthroscopy. We have purpose built, state of the art 131-iodine treatment facility for treatment of thyrotoxicosis in cats. Equipment for digital radiography, an MRI scanner and CT are being installed in stage 2 of the UVCS refurbishment (completion end of 2007).

The UVCC is one of the largest equine hospitals in Australia offering medical and surgical specialists who are available 24 hours a day, 7 days a week for critical care treatment tailored to the changing condition of the patient. Importantly, each surgical patient has a team of dedicated anaesthetists, led by a specialist, throughout all surgical procedures and in the post-operative recovery ward to monitor vital signs. The UVCC is equipped with blood gas machines for measuring pH, oxygen and carbon dioxide levels, as well as direct blood pressure monitoring and ventilators to ensure the utmost safety of patients. Blood samples can be analysed to provide information for our surgeons and medical specialists within the hour. Bacterial cultures can also be processed quickly and appropriate medication commenced without delay. The only one of its kind in NSW with an internationally recognised

team, the Centre has a horse treadmill to measure physiological parameters for racing and elite endurance performance horses. With individualised diagnostic packages including video endoscopy, and pre and post exercise analysis of respiratory and heart function and disease, the treadmill enables the diagnosis of the causes of poor performance, with measurements taken at walking through to a full gallop. A new treadmill is planned for installation in 2007. The Centre is both a small animal second opinion clinic for the clients of veterinarians in general practice, as well as providing day-to-day veterinary consultations. Our staff includes veterinarians with postgraduate degrees in surgery and radiology, and our clinicians are also academics with a special interest in life-saving advances in the development of veterinary drugs and medications. The UVCC is fully equipped to undertake arthroscopy, ultrasound, endoscopy, radiology, and MRI, and provides 24 hour, 7 day a week intensive care monitoring of both large and small animal patients. Nuclear scintigraphy and digital radiography are planed for installation in the near future.

Provide an indication in percentage terms of the proportion of cases that are primary (i.e. first opinion), and referrals (provide a breakdown by species, if helpful). If the establishment has a particular aim or policy as regards this mix, describe it.

For the UVCC the proportion of primary to referral cases are Equine 40:60, Small Animals 70:30, Dermatology 10:90, Bovine 100:0 and Small Ruminants10:90. Our plan is to increase the referral aspects of the practice both in small and large animals. For the UVCS figures please refer to Table 5.3.1 **Primary v Referral Consultations in the past three years** (*located in the Appendices for this Standard*).

Indicate what areas of clinical specialisation are covered, and the extent of the coverage (for example, a veterinarian with a particular specialisation may see patients in the clinic for one day a week, 3 afternoons, etc.):

At the UVCS referrals in feline internal medicine and in small animal surgery are available 5 days/week. There are 2 canine/small animal medicine positions currently vacant, but once these are filled it is anticipated that there will be an increased referral load in these areas. Dermatology referrals are accepted two days/week. Specialist imaging is available 5 days/week. At the UVCC the Equine Service currently employs two registered specialists in equine surgery and two registered specialist in equine medicine. The production animal service employs two registered specialists. These clinicians offer an equine and bovine referral service both during regular hospital hours and as part of the after-hours emergency service.

Outline how the fees for clinical services are decided, and how these compare with those charged by private practitioners:

The UVCC and UVCS receive no subsidy for their veterinary services and must charge standard fees for cases. The total costs are comparable to those of private veterinary practice and are kept to the minimum possible level that is consistent with the highest quality care for the animals being treated. Fees are set with reference to industry standards (AVA schedule of recommended fees), clinician and support staff time required and cost of equipment utilised. UVCS fees are on a par with other local primary and referral practices.

Indicate the relationship the Faculty has with outside practitioners (in small companion animals, equines and production animals) in terms of matters such as referral work, providing diagnostic or advisory services for private practitioners, practitioners participating in teaching, holiday or 'seeing practice' work for students, feedback on the level of clinical training.:

Both the UVCC and UVCS have excellent relationships with local practices. They form the basis for our referral caseload. A free telephone service is available to discuss possible referrals and answer other case queries. With respect to ruminants, clinicians at the UVCC provide services to the profession through presentations at regional and national meetings, Australian Cattle Vets Association and the Australian College of Veterinary scientists.

Clinicians within this group also serve as examiners for the Australian College of Veterinary Scientists' Cattle Chapter.

The Faculty has a strong relationship in general with the Profession through our Partner Practice program and many of the local practitioners participate in this program, together with veterinarians from around Australia. In addition, the Faculty has a Practitioner-in-Residence program, though this is not restricted to local practitioners.

Describe (if applicable) any other relationships with outside organisations that are routinely used to provide students with training (in particular practical training) in other clinical subjects (e.g. pathology work, interaction with state veterinary work).

Provide an outline of the administrative system(s) used for the patients, e.g. in terms of how case records are kept, how data is retrieved, whether systems are centralised, etc.

Medical records for patients of the UVCS and UVCC are kept in electronic format using a veterinary practice software package called Animal Intelligence Software. Records are added, maintained and retrieved via computer workstations throughout both hospitals, including veterinarians' offices upstairs, and clinical pathology laboratories in the McMaster Building at Sydney. Keyword searches are used to locate entries in individual records, or the entire database, depending on the search requirements. This has proven very useful in tracking specific cases for teaching and research in the faculty. The database is stored on a server which is backed up daily. The UVCC and UVCS databases, however, are run as separate and independent databases. Animal Intelligence Software website link for reference: http://www.animalintelligence.com/.

5.1.11 Ratios

Please see Tables 5.4, 5.5 and 5.6 located in the Appendices for this Standard.

5.2 Comments

Comment on major developments in the clinical services, now and in the near future.

The feline medicine referral service has seen tremendous growth with the appointment of 2 feline medicine specialists 3 years ago to work within the purpose built facility, the valentine Charlton Cat Centre.

Referral medicine	Sep 03-Feb 04	Sep 06-Feb 07	Percentage increase
Case numbers	852	**1479**	**+74%**
Referral income	$162,353	**$ 463,219**	**+ 185%**

The appointment of a canine or small animal medicine specialist to one of the 2 vacant positions is expected by then end of 2007. It is expected that this would be accompanied by a similar increase in case numbers as seen for feline referrals.

Senior level academic appointments in Orthopaedic Surgery and Radiology have been advertised and are currently being negotiated with candidates. A new position, (senior clinical registrar) is being advertised to provide continuity in the first opinion practice. This position closes at the end of June 2007.

The recent appointment of a Sesqui Lecturer in Aquatic Animal Health & Production is expected to increase the aquaculture content of the BVSc degree. Currently BVSc student receive 1 lecture (2 hrs) within Animal Husbandry 1A, lectures on Fish health in Veterinary Pathology and Veterinary Microbiology and 5 lectures on fish medicine in Year 4 and 1 x 3 hour practical class covering water quality, anaesthesia and post-mortem techniques within Bird Health and Production. The Faculty is considering development of an Aquatic Animal Elective for students in the Year 5 program. It is further envisaged that an aquaculture consultancy practice may be developed in which students may participate.

The Faculty of Veterinary Science has recently opened the Wildlife Health and Conservation Centre (WHCC) and Avian, Reptile and Exotic Animal Hospital. The Hospital has been

opened for one month and the numbers of consultations are on average 1 patient per day. We predict to increase this to 3 per day by January 2008 and 10 per day by January 2009. The WHCC is open from 8 am to 6 pm Monday to Friday and 9 am to 1 pm on Saturday. There are 6 consultation hours scheduled per day. The WHCC covers its own emergencies. The WHCC employs 4 staff members: a Director, a Veterinary Registrar, an Administrative Assistant and a Veterinary Nurse. The WHCC will not have students officially rotating through the clinic until January 2008. The WHCC will take 2 students (elective rotation) every other month (12 in total for the first year). In 2009 we hope to have 22 students rotate through. Beginning immediately we will have volunteer students spending time out here during our Saturday hours.

The recent appointment of a practice manager to the UVCS and UVCC (May 2007) is expected to take a large amount of the administrative load from senior academics to free up more time for clinical work, teaching and research.

Comment on local conditions or circumstances that might influence the ratios.

For Ratios see Tables 5.4, 5.5 and 5.6 located in the Appendices for this Standard. The ratios for animals available for clinical work for both companion animals and production animals are currently satisfactory. The total consultation numbers have increase for cattle, horses, dogs and cats over the last three years. In addition, the number of patients being hospitalised has increased for dogs, cats and horses 2004-2006. The comparative levels of primary vs. referral caseload have also changed over the last 3 year, where canine and other species categories have maintained a similar primary vs. referral caseload from 2004-2006, but feline referrals have had a major increase in cases in this time: from 33% to 57%.

The Ratio for animals available for post mortem examination is problematic. However, the Faculty has identified this and has implemented a plan to rectify this situation (see under Suggestions).

5.3 Suggestions

If the ratios for your establishment do not fall into the category "satisfactory" according to the indicative table in Annex I, what can be done to improve these ratios?

The ratios are all in the satisfactory category. However, the ratio for post mortem examinations is only slightly above the range and we would like to further improve this ratio. It is anticipated that this number will increase as more units of study incorporate additional post mortems within their practical classes. For example, Ruminant Health and Production is planning to incorporate a series of necropsies on the slink calves used in the obstetrics practical classes. This would increase the number of necropsies by 40-50 per year (approximately 0.5/student). Bird Health and Production is also planning to increase the number of necropsies by bringing in birds from farms which have died naturally for pathological examination and this would increase the number of necropsies by 60-70 per year (~0.5/student). Finally, a specialist large animal Pathologist has recently been hired by the Faculty and is due to arrive in December, 2007. She will supervise a week long rotation for Large Animal Pathology for all Year 5 students during a second UVCC rotation, which is due to begin in 2009. It is anticipated that her arrival will significantly increase the student's exposure to large animal necropsies.

Appendices Animal and Related Resources (Standard 5)

Specify the exact years (calendar or academic year) N, (N-1) and (N-2). The number of animals to be stated are for all disciplines combined (medicine, surgery, reproduction, etc.). In Tables 5.2 and 5.3, only animals coming into the establishment should be included. Animals studied in practical teaching outside the establishment should be entered in at the section entitled "Mobile Clinic" (5.1.9). There is sometimes linguistic confusion between terms used for different kinds of consultation clinics. The clinics that receive incoming patients for consultations are called "out-patient clinic" and "ambulatory clinic"; both terms are interchangeable. When referring to clinical services provided outside the establishment, e.g. on farms, the term "mobile clinic" should be used (7.8).

Pathology

Table 5.1: Number of necropsies over the past 3 years

	Species	Number of necropsies		
		2004	2005	2006
Farm/large animals	cattle	12	31	52
	foetus (bovine)			
	equines	41	36	29
	small ruminants	Sheep 47 Goats 4	Sheep 51 Goats 5	Sheep 64 Goats 5
	pigs	53	56	59
	Other farm animals**	2 (alpaca)	100 (fish)	100 (fish)
Small/pets	dogs	90	95	111
	cats	25	21	35
	other pets			

**Indicate species

Table 5.2: Number of animals received for consultation in the past three years

	Species	Number of patients		
		2004	2005	2006
Farm/large animals	Cattle	769	3673	4268
	Equines	1159	2693	2772
	Sheep		862	796
	Pigs		32	18
	Goats		21	64
	Alpacas		108	66
Small/pets	Dogs	8270	8641	10422
	Cats	2816	3424	3549
	other pets	354	254	190

Table 5.3: Patients hospitalised in the clinics in the past three years

	Species	Number of hospitalisations		
		2004	2005	2006
Farm/large animals	Cattle	5	3	4
	Equines	455	208	498
	Sheep		2	6
	Pigs		2	1
	Goats		2	2
	Alpacas		38	15
Small/pets	Dogs	1246	1193	1495
	Cats	491	753	829
	other pets	27	30	22

5.3.1 Primary v Referral Consultations in the past three years

UVCS

		Number of Patient Consultations					
		2006		2005		2004	
Species		Primary	Referral	Primary	Referral	Primary	Referral
Small/pets	dogs	54%	46%	55%	45%	58%	42%
	cats	43%	57%	45%	55%	67%	33%
	other	83%	17%	75%	25%	86%	14%
Overall for UVCS		**51%**	**49%**	**52%**	**48%**	**61%**	**39%**

See the section 'Main Indicators' in Annex I for the figures needed for calculating ratios. Give the figures for numerators and denominators. The ratios should then be expressed by taking the numerator as 1.

Table 5.4: Animals available for clinical work:		
Ratio: students/production animals		
Number of students graduated in the last year/ Number of production animals	96/7984	= 1/83 satisfactory is 1/>20

Table 5.5: Animals available for clinical work (cont):		
Ratio: students/companion animals		
Number of students graduated in the last year/ Number of companion animals	= 96/14161	= 1/147 satisfactory is 1/>50

Table 5.6: Animals available for necropsy:		
Ratio: students/post-mortem animals		
Number of students graduated in the last year/ Number of cadavers necropsied	= 96/455	= 1/4.7 satisfactory is 1/>4

Chapter 6 Admission and Students (Standard 6)

6.1 Factual Information

6.1.1 Student Numbers

There are a total of 941 students enrolled in the Faculty in 2007; 790 undergraduate students (604 in the BVSc program & 186 in the BAnVetBioSc program) and 151 postgraduate students (coursework and/or research). With respect to gender, 79% of undergraduate students in both degree programs are female while 64% of the postgraduate students are female. With respect to nationality, 75% of the BVSc students are local (national) and 98% of the AVBS students and 86% of the postgraduate students.

For further breakdown of the numbers of undergraduate and postgraduate students please refer to Tables 6.1 & 6.2 in the Appendices for this Standard.

State the minimum admission requirements.

BVSc program: Selection process and minimum admission requirements

In 2003 the intake quota for the BVSc degree rose from 120 to 130 and has been maintained at this level. The quota includes Commonwealth supported (CSP) and full fee (FEE) places.

CSP	Recent school leavers	RSL	Quota 45
	Non recent school leavers	NRSL	25
FEE	Local (national)	LFEE	25
	International (foreign)	IFEE	35

Specific admission requirements are outlined below. Admission is only offered into Year 1 of the BVSc degree. The Faculty does not accept transfers from other degree programs but credit (advanced) standing for past University level studies may be granted. Applications for credit standing are assessed by the relevant unit of study coordinator on evidence of the content and performance in prior degree studies. In general, credit standing is only available for Year 1 & 2 units of study and commonly involves Chemistry, Cell Biology and Genetics & Biometry.

Outline any selection processes (or criteria) used in addition to the minimum admission requirements.

The selection process is based predominantly on academic merit. The method is transparent and objective and, in relation to the CSP and LFEE intake, can be completed within the available 5 week period in January of each year. IFEE applications are processed throughout the year. Although an IFEE offer may be accepted, prospective students are advised that the place is not secured until 1st fee payment is received by the University. The extended IFEE process enables applicants from the northern hemisphere to secure places mid year following the termination of their school/academic year.

Describe whether students applying for and/or starting veterinary training have an equal or very variable knowledge base in scientific disciplines from their studies at school.

Students entering the Faculty have a variable knowledge base in scientific disciplines. Admissions information states that knowledge of Chemistry, Mathematics and Physics to Higher School Certificate (HSC) level will be assumed with knowledge of Biology an advantage, no preference is given to applicants on this basis. Despite the absence of compulsory prerequisite studies in science, the majority of entry students have studied at least Chemistry to HSC level.

Indicate where there is a limit to the number of students each year.

The number of students admitted to Year 1 are indicated above. There are no limits to the number of students entering higher Years, though these are generally slightly lower than in Year 1 due to a low level of attrition.

Describe how the number of government-funded student places is determined.

The University determines the distribution of Commonwealth Supported Places (CSPs) to the Faculties from the total provided by the Government. Distribution is on an historical basis plus demand for the degree program. Faculties may apply to the University for additional CSPs if there are residual unallocated CSPs (derived from reduction of places to Faculties where course demand is low or from provision of additional CSPs from the Government). Constraint of funding linked to the CSPs has led this Faculty to maintain a constant number of CSPs and increase local and international fee places in recent years. The Faculty would consider applying for additional CSPs and decreasing Fee places if funding associated with CSP's was increased.

Admissions Committee

The selection process is managed by Faculty's Admissions Committee with guidance from the Admissions and International Offices of the University. The Committee, which consists of the Sub Dean Admissions, Associate Dean Students and Associate Dean Learning and Teaching sets cut-off scores for CSP and LFEE offers based on quotas and estimated acceptance rates, determines Commitment Statements scores for NRSL places and assesses applications from international students.

Admissions Process

The selection process varies with intake category:-

a) Commonwealth Supported Places (CSP)

CSP - RSL Quota 45

Minimum requirement: completion of HSC within the past 12 months.

Applications are ranked solely on the University Admission Index (UAI). A UAI cut-off for the main round of offers is set by the Faculty on the basis of past acceptance rates calculated by the University and the demand for the degree program by current applicants. Generally all places are filled in the University's main round offer. In the past 5 years the UAI cut-off has been 98.4 (2007), 98.5 (2006), 98.45 (2005), 98.25 (2004) and 98.0 (2003) indicating increased demand.

CSP – NRSL Quota 25

Minimum requirement: completion of 2 full-time semesters of approved tertiary study.

Applications are ranked on an Admission Score calculated from grade point average (GPA - University studies), STAT (Special Tertiary Admissions Test) and Commitment Statement (*available during site visit upon request*) which requires documentation of past animal and veterinary-related activities. Maximum score for each of these components is:-

GPA	40
STAT	60
Commitment Statement	5

To be competitive, an applicant requires a distinction grade point average and above average perfect STAT and Statement scores. Unsuccessful applications are provided with feedback on areas where performance may be improved.

Local fee-paying BVSc students are eligible to apply for these places but they compete on the same basis as applicants from other degree programs. In 2007, 10 BVSc LFEE students achieved CSPs.

Describe any circumstances under which extra students may be admitted to the undergraduate veterinary course.

Special admissions for CSP places
10% of CSPs (currently 7 places) are reserved for indigenous and Torres Strait Islander students (Cadigal program) and students from a disadvantaged background (Broadway program). In relation to indigenous applicants, eligible individuals are identified by University staff at the Koori Centre and entry discussed on a case by case basis with the Admissions Committee: direct entry or entry via performance in Year 1 of an alternative science-based degree program may be offered. Broadway applicants are identified by the University and the LFEE entry cut-off point applied.

b) Fee Paying (FEE)

LFEE Quota 25
Minimum requirement: as for CSPs

A student in either the RSL or NRSL category may apply simultaneously for a GSP and a LFEE place. Offers are made on a ranked basis to applicants whose scores are no more than 5 points below the relevant cut-off score (UAI or Admission Score).

IFEE Quota 35
Minimum requirement: academic standard equivalent to local student entry.

The International Office forwards all applications that meet the University's general entry criteria, to the Faculty's Admission Committee for assessment.

Selection criteria for international applicants

a. For RSL applicants, the UAI equivalent (as calculated by the International Office) is greater than the UAI cut-off set for local fee students.
b. For NRSL applications, the applicant has satisfactorily completed at least 2 full-time semesters of a Bachelor's degree (degree standing assessed by International Office). In determining satisfactory performance, the Committee considers unit of study marks/grades, grade point averages and annual academic progress together with the international standing of the University concerned.
c. For ESL (English as second language) applicants who have not undertaken secondary or tertiary studies in English, an IELTS score of 7 or greater with no band (reading, writing, listening, speaking) lower than 7 is required. (This level is amongst the highest set by Faculties within the University).

Outline any changes foreseen in the number of students admitted annually. If applicable, describe how the Faculty plans to adjust to these changes.

An **Admissions Review** of the selection processes and quotas will occur in 2007. A committee consisting of Faculty staff, external stakeholders and student representatives will make recommendations regarding the selection process on the basis of a review of input from the profession and other external stakeholders and the performance, progress and identified deficiencies in generic skills/competencies of students over the past 5 years. It is not anticipated that the numbers of student intake will vary.

6.1.2 Student Flow

Describe the requirements (in terms of completing subjects and examinations) for progressing to a subsequent year of the course.

Progress through years 1 – 3 is based on satisfactory completion of units of study (UoS total mark ≥50%). Units of study in which a fail grade is recorded must be repeated at the first available opportunity and before a student is permitted to enrol in other units it must be possible for their attendance requirements (90% attendance at classes) to meet within the semester timetable. Therefore it is possible for a student to be enrolled in a combination of

Year 1 + Year 2 units or Year 2 + Year 3 units - the latter is less likely as there are prerequisite requirements in relation to enrolment in several Year 3 units.

Progress into Years 4 and 5 is restricted to completion of all units in preceding years of study.

Describe the academic circumstances under which the Faculty would oblige students to leave the course.

Students who fail two or more units of study in a semester or whose annual average mark is less than 50% are required to discuss their progress with the Year coordinator and the Associate Dean Students as part of the Faculty's 'At Risk' policy. Factors contributing to unsatisfactory performance are identified and the student informed of the Faculty and University support services: Faculty support includes free support tutorials for Year 1 students, unit of study coordinator feedback on self-directed exercises and reduced academic load while University support includes medical, counselling, disability, financial and learning centre services.

Suspension, deferment of studies and part-time enrolment

Suspension: Students, after completion of Year 3 or 4 may suspend their BVSc enrolment in order to undertake a research project for BSc(Vet) degree.

Deferment: Students are permitted to defer enrolment for up to 12 months.

Part-time enrolment: Students may be granted part-time enrolment (1 year of the curriculum over a 2-year period) on the basis of documented need eg illness, disability, personal hardship. It should also be noted that a student in Years 1 to 3 may be enrolled on a part-time basis (ie less than 18 credit points/semester) as a result of obtaining 1 or more fail grades – application for part-time enrolment is not required in this case provided the student is enrolled in the maximum number of units permitted by the semester timetable.

Exclusion from enrolment

A student may be excluded from enrolment by the Faculty on the basis of unsatisfactory academic progress over a total period of 3 to 4 semesters. This action is only undertaken after the Faculty has acted in accordance with the University's 'At Risk' policy. This policy's procedures involve early identification of students 'at risk', the provision of advice/support and tracking of subsequent academic performance. Prior to any decision to exclude a student, he/she has an opportunity to Show Cause as to why he/she should not be excluded. Such responses are examined by the Faculty's Appeals Committee (which consists of the Associate Dean Students, Associate Dean Learning and Teaching and the relevant year coordinator). If the decision to exclude the student results, he/she has a right of appeal firstly to the Dean and then to the Academic Board's Student Appeals Body.

In relation to local (national) students, exclusion is generally for a 1–2 year period following which a student may apply to the Dean for permission to re-enrol. A decision to grant re-enrolment is based on evidence provided by the student in relation to positive changes in the circumstances that were associated with prior unsatisfactory progress. In relation to international students, re-enrolment is generally not possible due to Australian student visa regulations.

Academic progress of 2002 student intake

Table 6.4 tracks the 2002 intake of 123 students to the current year and reflects annual progress.

- 80 students (65%) students completed the degree in the minimum five-year period and graduated in 2006.
- 24 students (20%) are likely to graduate this year. The progress of 7 students was delayed by fail grades while of the remaining students 10 suspended BVSc enrolment in order to complete a BSc(Vet) degree, 6 deferred enrolment for one year and 1 student enrolled part-time over a two-year period.
- 5 students (4%) will take ≥7 years to complete the degree
- 14 students (11%) withdrew from the degree program within the first 3 years. Of these students, 6 were to pursue other degree programs, 4 for unknown reasons, 1 for family commitments, 3 due to multiple fail grades and 1 was excluded.

6.2 Comments

Comment on the standard of the students starting the course.

In general, the academic standard of local students entering the degree program is very high whilst that of international students varies. These new students are highly motivated toward the goal of joining the veterinary profession – rare exceptions occur when pressure from family has been a prime motivation for entry.

English language competency amongst ESL (English as a 2nd language) entrants is variable. Whilst for international ESL applicants, the entry requirement (IELTS score or 7 or equivalent) is high by University of Sydney standards, both staff and students have identified a deficiency in language skill as contributing to poor assessment performance.

Animal-handling competency is also highly variable with the majority of entrants having an urban background with exposure to animals limited to dogs and cats.

The Admissions Review this year will closely examine entrant standards and competencies in relation to intake category and progression through the degree program. The aim will be to address deficiencies that impede course progress by modifying the entry requirements.

Comment on the ability of the Faculty to satisfactorily decide the numbers of students it can accept.

Comment on the factors that determine the number of students admitted.

The University determines the number of CSPs allocated to the Faculty while in the past the Commonwealth government set a limit on the number of LFEE places as a percentage of student enrolment in the degree course. Thus, the Faculty has limited ability to determine student intake quotas – it divides the CSPs provided between recent and non-recent school leaver categories and sets the limit on the IFEE places. In reaching these decisions a number of factors are taken into consideration; the educational desires of various sections of the community, personal and professional benefits of diversity (with respect to background, experience and culture) amongst the student body, the needs of the veterinary profession to operate in the international arena, the limitations of the teaching facilities available and the financial benefit to the teaching funds.

At present no further expansion in intake numbers in the BVSc program is planned. The number of fee paying applicants who meet the entry requirements is close to the Faculty quota due to increasing competition amongst Australian veterinary schools.

Comment on the adequacy of the facilities and teaching program to train the existing number of students.

Currently, the teaching facilities are maximally used with lecture theatre venues in high demand across the University and undergraduate laboratory space within the Faculty limited. However the Faculty continues to address these challenges with the openings of the UVCS (University Veterinary Centre Sydney) cat facility in 2005, an expanded computer laboratory in 2006, a lecture theatre complex and Wildlife Centre at Camden in 2007, the planned completion of the UVCS University Veterinary Centre Sydney dog facility in 2008 and ongoing expansion of teaching facilities at the Camden.

Further reference to the adequacy of the teaching program and facilities to train existing number of students is covered in the Standard 3: Facilities and Equipment.

Comment on the progress made by students in their studies, and the Faculty's ability to ensure that satisfactory progress is maintained.

The majority of students are able to progress satisfactorily to the completion of their degree in 5 to 6 years, as illustrated in **Tables 6.4 & 6.6**. Students who withdraw from the degree program generally do so within the first two years; while some withdrawals are associated with unsatisfactory progress, others are due to personal reasons that include financial burden, academic workload and conflicting family/personal commitments.

While the selection process takes into consideration an applicant's past academic performance, there are many factors other than academic ability that may impede a student's progress. Both the University and Faculty offer support to students via:-

- University student support services (Health, Counselling, Disability, Financial, Accommodation, International) and the Learning Centre
- Scholarships
- Faculty student advisors: Associate Dean Students, Sub Dean Students, Year Coordinators
- Special consideration policy – provision of replacement assessment for students who experience serious illness or misadventure in association with scheduled assessment
- At Risk policy – identifying, supporting and tracking students whose progress in unsatisfactory
- Deferment of studies and part-time enrolment

Comment on the percentage of students that will eventually graduate.

Percentage of students graduating
The percentage of student who will graduate eventually is high. Of the 123 students who enrolled in Year 1 in 2002, 65% have graduated, 24 % are still enrolled and likely to graduate. Of the 14% who withdrew within the 1st 2 years of enrolment, only 4 students (3%) withdrew due to multiple fail grades. (**Table 6.4**)

6.3 Suggestions

Two issues of concern have been raised within the Faculty's Learning and Teaching Committee with regards to student admissions. In order of priority these are:-

- Student intake numbers
- Lack of competency in English

The number of students in each academic year has been discussed within the context of the capacity of facilities and equipment to provide a good educational experience. There is staff support for a reduction in the intake quota from 130 to 120 places. The financial impact of reduced student numbers on the teaching budget has to be determined and the likelihood of increased funding from the University in relation to Commonwealth supported places updated.

The current selection process fails to identify students with inadequate English language skills prior to entry despite an increase in the IELTS levels required. Although the numbers concerned are small, the impact of poor performance and progress on the student is great.

The management of these two issues will be included in the forthcoming **Admissions Review**.

Appendices Admission and Students (Standard 6)

Table 6.1: Undergraduate student composition 2007

	BVSc	AVBS
Total undergraduate students	604	186[a]
Male students	128	39
Female students	476	147
Nationals (Local)	452	180
Foreign students (International)	152	6
1st year students	128	83
2nd year students	131	45
3rd year students	122	41
4th year students	111	17[b]
5th year students	112	

[a] Year 1 intake into B. Animal Veterinary Bioscience degree commenced in 2005 with GSP quota of 80

[b] Final intake year (2004) of Bachelor of Animal Science degree with GSP quota of 20

Table 6.2: Postgraduate student composition 2007

	Full-time	Part-time	Total
Total postgraduate students [a]	77	74	151
Male students [a]	23	31	54
Female students [a]	54	43	97
Nationals [a]	64	66	130
Foreign students [a]	12	9	21
1st year students [b]	18	2	20
2nd year students [b]	27	8	35
3rd year students [b]	26	7	33
4th year students [b]	11	5	16
5th year students [b]	2	4	6

[a] includes research, clinical training & coursework students

[b] includes research & clinical training students only (for coursework students refer to Table 10.2)

Table 6.3 Intake of students into the BVSc program

Year	CSP		Local Full Fee		International	
	Applications[a]	Acceptances	Applications[a]	Acceptances	Applications	Acceptances
1998	776	67	40	20	27	14
1999	1107	71	180	23	54	17
2000	1106	73	194	26	108	27
2001	1361	71	180	27	133	29
2002	1376	72	228	28	140	30
2003	1128	74	148	22	140[d]	30
2004	828	69	163	25	140[d]	30
2005	858	71[b]	162	29[c]	140[d]	37
2006	780	72[b]	144	33[c]	129	35
2007	749	72[b]	117	36[c]	142	33

[a] includes UAC applications with BVSc entry as a preference

[b] includes LFEE (local fee) students in later years who gained a CSP (Commonwealth Supported Place).

[c] increased intake off sets LFEE students in later years who gained a CSP

[d] actual numbers not available - estimate only

Table 6.4 Student Flow: Status of BVSc Intake in 2002

Status in 2007	Student Intake 2002 = 123[a]	
	Student number	% of 2002 intake
Graduated in 2006	80	65
Enrolled in Year 5 in 2007	24	20
Enrolled in Year 4 in 2007	3	2
Enrolled in Year 3 in 2007	1	1
Enrolled in BSc(Vet) in 2007	1	1
Withdrew in 2002- 2004[b]	14	11
Total	123	100

[a] Number of student enrolled at the HECS census date of 31 March (approximately 3 Year 1 students who enroll each year, withdraw before the census date).

[b] Withdrawals: includes 3 during 2002; 8 failed to re-enroll in 2003 & 5 in 2004.

Table 6.5 Number of BVSc students graduating annually over last 5 years

Year	Student number
2006	94
2005	104
2004	114
2003	98
2002	86

Table 6.6 Average duration of BVSc studies of 94 students graduating in 2006

Duration of attendance [a]	Student number
4 years	0
5 years	89
6 years	5
7+ years	0
Average number of years is 5.035	

[a] only includes years during which a student was enrolled in the BVSc program

Chapter 7 Curriculum (Standard 7)

Introduction

The Faculty of Veterinary Science at the University of Sydney has defined a set of principles and practices that underpin learning and teaching within the Faculty. These processes contribute to the provision of a first-class veterinary education and ensure our students are prepared for life after graduation in whichever endeavour within Veterinary Science they may choose. The Faculty is committed to the development of a learning community that has an atmosphere of intellectual excitement and is research-led. The current curriculum has been designed to be flexible and adaptive to changing national and international needs for veterinary education and is clear in its academic expectations, standards and assessment. The Faculty believes in student–centered learning and aims to prepare students as veterinary practitioners and life-long learners. In this way, teaching material is organised to demonstrate how the basic and paraclinical sciences, such as chemistry, biochemistry, pathology and microbiology, are applicable to veterinary practice. Delivery is frequently based around clinical cases (case-based approach) and methods of dealing with real–life veterinary problems are emphasised. Cases are frequently repeated in successive years by adding increasingly sophisticated material, and therefore encouraging vertical integration of important concepts. A strong emphasis on animal handling skills is incorporated into the curriculum which is competency driven. These skills are also aligned to other Units of Study (e.g. Topographical Anatomy) so that these skills are re-iterated throughout the curriculum.

A series of ***Graduate Attributes*** have been developed for the Faculty of Veterinary Science, which are aligned with the attributes of the University but which specifically address the needs of the Faculty and the Profession. These Attributes **underpin the objectives of the curriculum and its development**. The Attributes are divided into five broad aims (which are consistent with the aims of the University), with additional goals within each aim that more specifically relate to attributes required of graduates of the Faculty of Veterinary Science. The Graduate Attributes are outlined in **Table 7.8** in the Appendices.

In order to ensure that each Graduate Attribute is being addressed within the curriculum, all units of study co-ordinators have mapped the specific attributes encompassed within their unit (*also see Standard 12: Outcomes Assessment*). These attributes are included in the front of each unit of study handbook. In addition, case studies and further information regarding the inclusion of the Graduate Attributes within the new curriculum can be viewed on the University Web Page for Graduate Attributes (http://www.itl.usyd.edu.au/GraduateAttributes/).

The Faculty also has adopted the series of "Essential Clinical Competencies required of the New Veterinary Graduate" as outlined by the Education Strategy Steering Group of the RCVS. The "day one skills" have been integrated into clinical teaching in Years 4 and 5 and competency in these techniques are assessed during this period. Furthermore, a number of the skills listed in the "Essential Competencies required after approximately one year of further Professional Training" are addressed within the clinical curriculum.

Describe the degrees of freedom that the establishment has to change the curriculum:

The Faculty of Veterinary Science at the University of Sydney has significant freedom to review and implement recommended curricular changes. Recommendations for curricular changes may arise from students, teaching staff, unit of study co-ordinators, Year co-ordinators, the BVSc L&T Subcommittee or external sources e.g Partner Practitioners, External Advisory Committee. Specific recommendations for curricular change are evaluated by the BVSc subcommittee and if approved are submitted to the Faculty L&T committee and then the Faculty for approval. If the curricular changes are significant (e.g. introduction of new Units of Study, changes to pre-requisites etc), these must also be approved by the University Undergraduate Studies committee and Academic Board.

The Faculty of Veterinary Science completed a comprehensive review of the BVSc degree in 1999. The review involved four years of data collection and involved academic staff and students, as well as members of the veterinary profession. Many areas that needed

improvement and innovation were identified and the revised curriculum commenced with the Year 1 students enrolling in 2000. The full new curriculum has now been implemented and the first group of students to have completed the new curriculum graduated in December, 2004. The completed new curriculum was reviewed by VSAAC in October, 2004. However, since this time there have been a number of smaller curricular changes in response to evaluation of the new curriculum by staff and students. These changes are outlined under section 7.5.

Outline how decisions are taken on the allocation of hours between various subjects and on the balance between theoretical and practical teaching.

One of the major objectives of the curriculum review was to evaluate time apportioned to all subjects within the veterinary curriculum, to conduct a curriculum audit to ensure all required topics were being addressed and replication was avoided, and to address the balance between theoretical, practical and clinical training. An important aim was to better prepare students for their transition to practice by identifying and implementing development of critical skills through vertical alignment within the curriculum.

The full new curriculum has been in place since 2004, and ongoing review and revision is occurring under the aegis of the BVSc Subcommittee and the Year groups. The Year groups consist of all unit of study co-ordinators teaching within a curriculum year and any interested members of staff. These groups have been formed to better monitor curricular developments within each year of the curriculum, to mentor young staff members and to help develop and encourage best teaching practice. In 2006 there was a significant review of Years 1 and 2 of the veterinary curriculum, with the recommendations from the Year groups subsequently implemented in 2007. Currently there is a review of a full year of teaching at Camden, which will have curricular implications for Years 3 and 4. It is anticipated that the recommendations from this review will be finalised by the end of 2007, with any recommended changes to be implemented in 2009.

7.1 Factual Information

7.1.1 Undergraduate training curriculum

The majority of Units of Study within the veterinary curriculum at the University of Sydney are "core" subjects, which are required to be taken and passed by every student enrolled in the Bachelor of Veterinary Science. There are a number of "electives" which may be taken in the final year of the program (Year 5) and these are outlined in Table 7.4 – Curriculum Appendix. Students may choose to take an "optional" subject from any of the units of study offered at the University of Sydney and these may be over and above the obligatory curriculum. Students undertaking these units of study are usually repeating a year and therefore have "free" time to take these subjects. The Faculty does not recommend students with a full course load (24 CP in one semester or 48 CP over the year) enrol in additional Units of Study.

The obligatory extramural work is outlined in Table 7.7 and also discussed in Standard 5: Animals and Related Resources under 5.1.2. Animal Production.

7.1.2 Types of training

The Faculty is committed to best practice in innovative teaching and to a variety of teaching methods including lectures, laboratory practical classes, tutorials, group work sessions, case studies (including development of on-line case-based material), computer-assisted learning and involvement in intramural clinical practice. Teachers are encouraged to provide a range of learning activities to stimulate different learning styles and to present information in challenging and interactive ways.

7.1.3 Curriculum followed by all students

See tables 7.1, 7.2 and 7.3 in the Appendices.

7.1.4 Optional Subjects

There are no optional subjects within the Veterinary Curriculum at the University of Sydney *(see 7.1.1.)*. Students may take additional Units of Study provided by other Faculties within the University, but this is only recommended for students repeating a year and with a lower workload.

7.1.5 Extramural Work

Indicate the guidelines pertaining to this activity, and the manner by which it is assessed.

The pre-clinical extramural program for Animal Husbandry is described in Standard 5: Animals and Related Resources and also below under 7.4.part B; Animal Husbandry.

The abattoir extramural training is described under 7.3 of this Standard.

The clinical extramural work is described in Standard 8; Clinical Resources and Clinical Learning and Teaching.

7.2 Ratios: Theoretical, practical and clinical training

Ratio of theoretical training/practical and clinical training (RE)

$$RE = \frac{d}{c} = \frac{1}{1.650}$$

Ratio of clinical training/theoretical and practical training (RC)

$$RC = \frac{e_3}{d_1 + e_1 + e_2} = \frac{1}{1.501}$$

Both these ratios are satisfactory. The calculations for the ratios are outlined in the Appendices for the Curriculum Standard.

7. 3 Specific Information on Practical Training related to Food Hygiene

Describe arrangements for teaching in a slaughterhouse and/or in premises for the production, processing, distribution/sale or consumption of food of animal origin?

Indicate the distance to the slaughterhouses where students undergo training, and the species covered. Outline the structure and the frequency of these visits (group size, number of trainers, duration etc).

Year 4 students spend 5 days at either a cattle, sheep or pig abattoir extramurally. These abattoirs are export accredited and the students are under the supervision of an Australian Quarantine Inspection Service veterinarian. These abattoirs can be up to 1300 km from Sydney, the closest being 250 km. They are located in NSW, SA and Tas. On average 2-4 students per week are placed at the abattoir. The AQIS veterinarian is responsible for training, but in all cases appropriate personnel at the abattoir will also assist. Students also work through a number of written modules while on site. These modules will be available for review during the VSAAC visit.

7. 4 Further Information on the Curriculum

Provide a short description of the teaching program in (see Table 7.3):

A. Basic Subjects

These subjects are predominantly taught in Year 1 and 2 of the new curriculum. The subjects in these years are designed to introduce students to the fundamental scientific principles within the veterinary curriculum and to develop a firm understanding of the sophisticated and dynamic conceptions of animal systems that support the paraclinical subjects, chiefly taught in Year 3. These subjects include Chemistry, Cell Biology, Anatomy and Physiology (which have been integrated and are taught as Structure and Function), Biometry, Genetics, Nutrition (taught in combination with Digestion), Animal Behaviour and Conservation Biology.

B. Animal Production

The Faculty of Veterinary Science has recently introduced a completely revised and revitalised Animal Husbandry curriculum for its BVSc degree. The 5 year, vertically integrated theme has a strong emphasis on animal handling skills, and includes teaching

programs in a wide range of animal industries. Students are introduced to animal production in Year 1 through Animal Husbandry 1A and 1B in Semester 1 and Semester 2 respectively. Animal Husbandry 1A addresses aspects of small animal, horse, pig and bird husbandry and handling while Animal Husbandry 1B covers aspects of ruminant management, production and handling, especially sheep, beef and dairy cattle. After completion of Year 1 students must undertake a further week of large animal handling classes at the University's Camden Farms during the vacation period to enable further development of animal handling skills with cattle, horses, pigs, sheep and poultry. Plans for additional support of this program for later years are currently being developed.

Applied animal production is taught in the context of **extramural farm placements** which may be undertaken after the completion of the first 2 years of the course. The Extramural Practical Work in Animal Husbandry has been designed to learn aspects of farm management and the roles of veterinarians on farms. Students may have opportunities to practice their animal handling skills during these placements. The number of days required for placement at each farm type is: horse 5 days, dairy cattle 5 days, beef cattle 5 days, sheep 5 days, pig 3 days, poultry 2 days (25 days total). Placements for compulsory species are arranged through the Faculty on accredited properties, listed in the Faculty's Property Database. The horse placement must be completed on a horse stud, not a riding school. Students are not permitted to substitute a goat dairy for a cattle dairy or substitute alpacas, deer or goats for their sheep placement. Students have the option to complete a further 4 weeks of elective placements to develop further skills in other areas or to further their skills with the core species listed above. These placements may occur in Veterinary Practices, Wildlife Parks/ Zoos, Alpaca farms etc. Students can use accredited properties or source non-database organisations. They can also gain credit by attending an intensive week-long course to improve horse handling skills offered by Charles Sturt University, Orange. Students are assessed by farm owners or managers using a standard form similar to the Supervisor Report Form used for clinical extramural placements and abattoir placements. Students must obtain a satisfactory rating for all categories. Unsatisfactory ratings are discussed with students by the SubDean Animal Husbandry and a remediation program planned. In addition, students must submit a Report in Year 4 which critically evaluates farm management practices. These reports must be graded as satisfactory as part of the assessment in the unit of study Animal Husbandry Practical Report.

Animal handling skills are also developed through units of study which incorporate live animal handling such as topographical Anatomy and Professional Practice placements in Year 2, and then revisited in Year 4 within the Ruminant Health and Production, Equine Medicine and Surgery, Pig Health & Production and Bird Health & Production and the submission of a Animal Husbandry Practical Reports.

C. *Clinical Subjects*

There has been increasing emphasis on adoption of learning through enquiry as a teaching strategy, which has led to the development of a variety of case-based, student-centred learning activities that develop graduate attributes focused on clinical training and life long learning in all years of curriculum. This is particularly the case in the paraclinical subject in Year 3, which are all taught by veterinarians and with a strong problem-solving focus. Furthermore, these subjects are aligned horizontally in Year 3 and vertically with Years 4 and 5 to ensure a common approach to case-based learning between units of study. In this way, similar cases are taught within and between years of the veterinary curriculum, but in an increasingly sophisticated manner, ensuring advanced clinical competence by graduation.

D. *Food Hygiene*

Important concepts on food safety are taught in a variety of units of study throughout the curriculum including Veterinary Microbiology, Veterinary Parasitology, Animal Disease and Veterinary Public Health. In this last unit of study, there is a specific focus on this subject area involving a number of different learning activities including lectures, multimedia on-line modules and practical classes. In addition, a specific week within Semester 2, Year 3 has been developed to better focus on issues surrounding food safety including risk analysis and HACCP. All lectures and practical classes during this week are focused on food hygiene issues, although they involve a variety of different

units of study. This helps students to better appreciate the importance of this subject and to integrate information from other units of study into their understanding of food safety.

E. ***Professional Knowledge***
Professional development occurs throughout the curriculum through the Professional Practice units of study. Professional Practice 1A and 1B will be replaced in 2008 with a single unit of study, which has further addressed a number of the student concerns outlined in earlier VSAAC visitation documents. Professional Practice 2 focuses on veterinary practice management and this is enhanced through continued Education Support Practice visits. Professional Practice 3 provides students with a understanding of financial and legal perspectives in their management of cases through a variety of scenarios typical of veterinary practice life. Finally, Preparation for Veterinary Practice in Year 4 provides a vital introduction to the transition to Year 5 and veterinary practice.

State the parts of the programme that must be attended obligatorily by the students.

All units of study are core within the veterinary curriculum except for the two electives in final year (the electives are core, but the students have a choice as to which elective they may undertake). The Faculty policy for attendance within the Units of Study is that students must attend 90% of all lectures and 100% of practical classes and tutorials within the Units of Study. This policy is stated at the front of all handbooks and is thus explicit for students.

How is attendance verified?

Attendance at lectures is not strictly monitored, though unit of co-ordinators may take a class role if they are concerned that attendance has decreased to an unsatisfactory level. Attendance at practical classes is monitored via a class role and students must complete a absence from required classes form (available from the Faculty Office), which includes provision of appropriate documentation (e.g. medical certificate) to verify their absence from these classes. It is the requirement of the unit of study co-ordinator to monitor attendance.

7. 5 Comments

Comment on the way in which the veterinary curriculum prepares the graduate for the various parts of the veterinary profession, especially under the specific conditions prevailing in your country/region.

The Faculty of Veterinary Science has designed a curriculum that is flexible and adaptive to the changing needs in veterinary education. The curriculum is enquiry-based and research led, with a strong emphasis on developing a range of generic graduate attributes. Life long-learning skills are embedded in the curriculum allowing adaptability for our students post graduation. In addition, a significant proportion of our students our international, requiring a more global focus for our curriculum.

Comment on the major developments in the curriculum, now and in the future.

In 2000 the Faculty implemented a new curriculum which has now been in place for all 5 Years of the degree since 2004. One of the major driving philosophies of the curriculum review was greater integration of topics within the curriculum, and a need for more contextual learning. The Faculty committed to earlier introduction of units of study that cover animal behaviour, animal handling skills, clinical problems and diseases and the vertical integration of these of concepts throughout the curriculum. In addition, new topics were introduced that deal with some of the core elements of veterinary practice, such as communication and business skills. Finally, the Faculty committed to ensuring a better transition to veterinary practice by implementing a lecture free final year with significant intramural and extramural components.

In September of 2004, VSAAC re-visited the Faculty to evaluate the new curriculum, with particular emphasis on the final clinical year. At this visit, VSAAC commended the Faculty on the progress that had been made for the entire curriculum and also the way the Faculty had

addressed, to VSAACs' complete satisfaction, the recommendations made after the 2001 visit. There were no further recommendations made at this time.

The new curriculum has now been implemented in all years of the course and we will provide feedback that demonstrates the experiences students (interns) have gained in Year 5 has greatly eased the transition to practice and has subsequently enhanced their subsequent professional development (*see Standard 12; Outcomes Assessment*).

In 2006, Years 1 and 2 of the new curriculum were re-evaluated and the recommendations from this review are being implemented in 2007 and 2008. Currently the Faculty is undertaking a review of Years 3 and 4 (in particular Year 4) with the objective of creating a full year of teaching at Camden.

Comment on local conditions or circumstances that might influence the ratios in 7.2.

The ratios in 7.2 are currently satisfactory. It is not anticipated that local conditions or circumstances will change and therefore adversely influence these ratios.

7. 6 Suggestions

If the ratios in 7.2 for your establishment do not fall into the category "satisfactory" according to the indicative table in Annex 1, what can be done to improve the ratios?

Not applicable.

7. 7 Delivery, Learning and Assessment

Describe how the methods for student assessment are used to meet course objectives.

The Faculty of Veterinary Science is committed to provision of assessment task that:

- ✓ address intended learning outcomes and Graduate Attributes,
- ✓ are aligned with learning activities and learning outcomes (constructive alignment),
- ✓ help promote life long learning,
- ✓ reward transformation, not accumulation,
- ✓ are authentic, meaningful and valid,
- ✓ entail appropriate workload for students and staff,
- ✓ provide timely feedback.

Each unit of study co-ordinator is required to identify specific learning outcomes and graduate attributes addressed within the unit of study, make these explicit to the students and ensure that the assessment tasks are aligned with these outcomes and attributes.

Describe the methods used for formative and summative assessment.

Each unit of study is required to have multiple summative assessment activities within a semester and therefore single (100%) examinations at the end of the semester no longer exist. Furthermore, staff are encouraged to provide a variety of assessment tasks to better evaluate students with different learning styles. Assessment tasks may be within class, on-line or take-home assignments. The examination may be short or long essay questions, modified essay exams or multiple choice questions. Similar, formative assessment activities are also provided to students in most units of study and may be provided in-class or as separate assignments. Emphasis in all assessment activities is on demonstration of understanding as opposed to superficial, rote learning.

The Faculty is strongly committed to provision of constructive, timely feedback to students for both summative and formative assessment activities. The provision of a number of different assessment activities within a unit of study enables lecturers to provide students with up-dates on their progress and to address areas of misunderstanding.

Assessment in the BVSc degree is based on merit and a passing level of performance is gained when specific learning outcomes for a unit of study are met. To this extent the outcomes in each paper are criterion or standard based and norm referencing of assessment activities is not part of Faculty policy. The criteria, or grade descriptors, required for each

grade are clearly communicated to students in the unit of study handbook, as is the nature and weighting of assessment components.

Describe the techniques used to assess specific educational objectives, including attitudinal objectives.

See previous two answers regarding constructive alignment and specific assessment methodologies and 7.8.3 for a discussion on assessment of attitudinal objectives under a discussion of Supervisor Report Forms (SRFs).

Describe the methods used for assessing clinical examination skills.

With the implementation of the new curriculum, increased attention has been given to development and assessment of animal handling skills in Years 1-4 (*which is outlined in more detail in Standard 5: Animals and Related Resources, under "the nature of any other animal use in teaching other basic subjects"*). As an extension to the development of these skills, teaching of clinical examination skills is also integrated throughout the undergraduate curriculum. For example, in Year 1 clinicians assist in the integration of auscultation skills with the anatomy of the heart. In Year 2, clinicians integrate practical demonstrations of neurological examination of the dog and cat with anatomy and neuroanatomy lectures. From Year 3, teaching is focused not only on acquisition and consolidation of clinical skills but also integration of acquired knowledge into clinical problems. In Year 5, advanced clinical examination skills are developed.

In their final year, all students undertaking small animal medicine rotations at the UVCS are required to perform clinical examinations on patients during consultations and on hospitalised patients. Development of adequate skills in clinical examination is assessed by clinical supervisors on a patient-by-patient basis and the year 5 students (interns) compare and discuss their clinical examination findings with clinical supervisors. In the referral medicine rotation students also receive interactive tutorials on advanced clinical examination skills in dogs and cats. Further, students are able to regularly review their clinical examination skills by consulting physical examination DVDs developed by clinical supervisors for use by students in Years 3 to 5 of the curriculum. Student clinical examination skills are assessed at the end of each rotation in several sections of the Supervisor Report Form (SRF).

In addition, clinical examination skills are assessed during the RMP-1 Rotation at the UVCC as part of the student intern's overall performance in each of the 3 sub-rotations. Sub-rotation specific grade descriptors are used to provide an overall assessment of the student intern's technical competency (*section 5 of the generic Supervisor Report Form – see appendices in Standard 8; Clinical Resources*). This section includes animal handling/restraint skills, physical examination, basic clinical diagnostic and therapeutic skills (e.g. administration of medications and venipuncture). Copies of the grade descriptors for the bovine and equine sub-rotations are available upon request during the site visit.

7. 8 Teaching Quality and Evaluation

7.8.1 The Teaching Program

Describe the measures taken to ensure co-ordination in the teaching between the different departments, sections, institutes and services.

The Faculty of Veterinary Science implemented a restructure in 2000 which devolved the former Departmental structure in favour of a single, cohesive unit. This restructure gave the L&T committee the oversight of all curricular matters, including co-ordination of teaching within the entire Faculty. The BVSc subcommittee is largely responsible for this oversight within the veterinary curriculum and consists of Year co-ordinators, student representatives, the SubDeans of e-Learning, Animal Husbandry and Animal Welfare, an external educational consultant, a library representative and the Associate Dean L&T. It is the responsibility of this committee to evaluate and review the current curriculum, identify deficiencies and redundancies in subject areas and to promote best practice in teaching. This co-ordination within teaching has also been enhanced by the formation in 2006 of Year teaching groups.

These groups meet twice a year to discuss the recently completed units of study, to evaluate any problem areas (e.g. assessment) and to ensure optimal horizontal alignment and integration of material provided to the students.

There is only one unit of study that is not taught within the Veterinary Faculty – Chemistry in Year 1. This unit of study is taught by members of the Science Faculty. We liaise closely with the unit of study co-ordinator to ensure common goals for learning outcomes and assessment tasks. The unit of study co-ordinator is invited to the Year group meetings.

Describe the philosophy of the pedagogical approach of the institution. In particular, describe the use of newer approaches, such as problem-based learning, interactive computer-assisted learning, etc.

The fundamental pedagogical approach of the Faculty to Learning and Teaching within the veterinary curriculum is described in the Introduction to this Standard. This includes many of the innovative learning methodologies we have adopted as part of the new curriculum and which have been further enhanced through Faculty teaching development workshops. The wide range of interactive, computer-assisted learning resources which have been developed by the Faculty are discussed in detail in Standard 4: Library and Learning Resources.

Indicate the extent to which course notes are used to supplement or substitute for the use of standard veterinary textbooks.

All units of study co-ordinators are required to provide a handbook to students. These handbooks must include a standard set of information within the introduction which includes unit of study description, the aims of the course, the learning outcomes, graduate attributes addressed within the unit of study, assessment procedures and values, grade descriptors, lecturers, recommended reading list and additional references, on-line learning activities and WebCT information, attendance requirements, safety notes and responsibilities, student feedback and resultant course improvements, Faculty and University resources and policies, the Faculty guideline for assignments, and resources available for the University Learning Centre.

Additional factual information is usually included, but the extent will depend on the availability of appropriate textbooks. Most handbooks will include at a minimum a comprehensive outline of the curriculum content. Handbooks are reviewed by the Publications Unit and the L&T committee and information provided is expected to be up-to-date, clear and concise.

Some units of study have an additional handbook for practical classes.

Describe (if applicable) any established or contractual arrangements that support undergraduate teaching between the establishment and outside bodies, e.g. farms, breeding centres, practitioners, state veterinary services, factories/processing plants, outside laboratories, etc. Briefly describe how these arrangements work out in practice in terms of the contact this provides for all students or for selected students.

The Faculty of Veterinary Science has established a number of important contacts with outside groups that support undergraduate teaching. This includes arrangements with a wide variety of farms and studs (for extramural animal husbandry placements in Year 3), veterinary practitioners through our Partner Practice program (for teaching in Professional Practice in Years 1 and 2, and for extramural clinical placements, Year 5), government agencies such as the Departments of Primary Industries and Rural Lands Protection Boards in NSW (for Rural Public Practice placements in Year 5), the Elizabeth Macarthur Agricultural Institute (for large animal pathology instruction in Year 5) and the Animal Quarantine and Inspection Service for help with undergraduate teaching in Animal Disease, Veterinary Public Health and abattoir placements in Year 3. We also have a number of more flexible arrangements with a variety of external laboratories, other institutions and Universities overseas for students who have applied for an elective program at these institutions.

7.8.2 The Teaching Environment

Describe the available staff development facilities, particularly in relation to teaching skills.

Members of the Faculty of Veterinary Science at the University of Sydney are committed to teaching excellence, are passionate about helping students to learn, have received formal and/or in-house training in higher education and are recognised and rewarded for their attainments in teaching. Strong investment in staff development has resulted in improved student perceptions of teaching quality (*see Standard 12: Outcomes Assessment*) and greater staff engagement with their teaching. New staff members are required to undertake the Principles and Practice of University Teaching (3 Day Program) run by the Institute of Teaching and Learning (ITL) within the first year of their appointment. New staff members are also required to enrol in the Graduate Certificate in Educational Studies (Higher Education) within three years of their appointment. In addition, a number of "older" staff members have undertaken the Graduate Certificate and as a result, more than 35% of our teaching staff have attained this higher degree in Education.

The L&T committee of the Faculty is one of the strongest and most active in the University and runs or participates in a number of workshops on teaching each year. For example, in the last two years the Faculty has run or actively participated in a workshop or symposium on Assessment Practices (both an internal Faculty and a University wide), Curriculum Reform and Review, Research-Led Teaching, Information and Communication Technology and Veterinary Nutrition. In addition, the Faculty conducts a biannual Induction Workshop on L&T for new staff members. Annual Partner Practice conferences are also run by the Faculty and have a significant educational component which helps promote good teaching practice for our extramural teaching partners. Finally, members of staff have presented at a range of teaching conferences external to the University over the last couple of years including the AVA Education Day, an On-Line Learning Symposium at University of Queensland and the ASCILITE Conference in Perth.

Describe the available system for reward of teaching excellence (e.g. accelerated promotion).

The Faculty acknowledges and rewards teaching excellence in a number of ways. Teaching is one of the three categories evaluated annually as part of academic performance (Professional Management and Development Program or PM&D). Teaching is also integral to the promotion process at the University of Sydney. In order to be promoted staff must demonstrate either "outstanding" or "superior" performance in teaching and this takes into consideration student course evaluations, postgraduate teaching, leadership in teaching and the scholarship of teaching of the candidate. Definitions of outstanding and superior and examples where staff have been promoted on the basis of teaching excellence is available at: http://www.usyd.edu.au/learning/teaching_matters/academic_promotions.shtml.

The Faculty also acknowledges members of staff who have helped establish of a shared culture of excellence and scholarship in teaching and learning through the annual Grace Mary Mitchell Awards. Recipients of these awards have made a major contribution to the development of a professional culture, which recognises the centrality of excellence in teaching and learning, with implementation of quality assurance mechanisms providing regular evaluation and ongoing curriculum improvement. A second Grace Mary Mitchell award is given annually to staff who have been nominated by veterinary students for the excellence and dedication to teaching. Teaching staff are also encouraged and assisted in nominating for University (Vice Chancellors awards for Outstanding Teaching) and National Teaching Awards (e.g. Carrick Institute Awards and Australian College of Educators Quality Teaching Awards). The Faculty of Veterinary Science has a very impressive record in attaining these University and National Teaching Awards.

Describe other measures taken to improve the quality of teaching.

A significant recent development within the Faculty is the formation of the new system of teaching review whereby Year Groups of teachers (see earlier for definition) review learning and teaching activities each semester. The aims of this program is to encourage stronger peer review, sharing of successful teaching strategies and a collegial approach to improving

quality of L&T within the Faculty. The Faculty also recognises that the role of the individual instructor remains critical to high quality teaching within the curriculum as a whole. To this end educational training as a teacher has become a requirement and is seen as essential for development of a faculty member's effectiveness as a veterinary educator. This outcome has been largely achieved with the requirement of staff to undertake the 3 Day Program and Graduate Certificate and has resulted in a strong culture of shared teaching excellence with a common vocabulary for discussions about teaching, clarification and improvement of instructional techniques, stimulation of lecturers to think about their teaching and an enlivened experience of teaching within the Faculty.

Finally, in the most recent Academic Board review, the veterinary Faculty were commended for their "open and shared culture in teaching, where participation is shared and practiced" and for the "creation of a new culture with a sense of community".

7.8.3 The Examination System

Describe the examination system of the establishment, particularly in relation to:

- **Is there a central examination policy for the establishment as a whole? If yes, by whom is it decided?**

The University of Sydney has a centralised examination system. The majority of units of study within the veterinary curriculum are taught and assessed within a single semester. The University organises and runs final examination at the end of each semester, however the Faculty may co-ordinate intrasemester assessment activities or assessment for practical classes. Final marks are approved by a meeting of the Faculty's Examination Board and submitted to the central University for distribution to students.

The Faculty's policy and practices on assessment are aligned with that of the University (available at http://www.usyd.edu.au/learning/about/policies.shtml). The University has appointed a working party to review assessment policy, with information regarding this working party available at: http://www.usyd.edu.au/ab/working_parties/index.shtml .

- **Are there special periods (without teaching) during the year for examinations?**

At the end of each of each semester there is a period of Study Vacation (Stuvac). During this time there are no formal teaching activities (tutorials may be provided but attendance is voluntary). In addition, no assessments or assignments may be undertaken during this time. At the end of the Study Vacation is a two week exam period during which examinations are evenly spaced. There are no teaching activities during this time.

- **What form(s) of examination are used (written papers, multiple choice questions, oral, practical, clinical examination, continuous assessment, etc).**

Examinations (assessment activities) may take a variety of formats as discussed previously under section 7.7 Delivery, Learning and Assessment. Continuous assessment is required in all units of study and unit of study co-ordinators are encouraged to use different formats to evaluate students with different learning styles. Specific assessment activities occurring within clinical rotations are discussed in Standard 8; Clinical Resources under Final Year Assessment Policy

- **Is use made of external examiners?**

The Faculty uses external examiners to evaluate students on extramural placements at a variety of times within the curriculum including Years 1 and 2 (Professional Practice placements), in Year 3 (Animal Husbandry farm placements and within Abattoirs) and in Year 5 (Partner Practices). Assessment of these activities are aligned by a Supervisor Report Form, (SRF) which is similar (but not identical) in format (*see **Figure 7** located in the Appendices for Chapter 8*). The genesis of the current format for the SRF was provided by reports for Year 5 students who were deemed "at risk of failure" during the first couple of years of the new curriculum. It was noted by our external assessors that professionalism, enthusiasm and communication skills should also be evaluated as well as specific knowledge or technical skills. Therefore these components are part of the

SRF assessment for all external (and internal clinical) learning activities. Students with an unsatisfactory SRF may be required to have consultation with Faculty members, remediation and further learning activities or failure of the unit of study depending upon the significance of the feedback from external assessors, student response to feedback, environmental factors and other assessment activities.

- **How many retakes of an examination are allowed?**

The University of Sydney has introduced a policy regarding the number of times a student may undertake a specific assessment task. This Special Consideration Policy states that students may only undertake an assessment task **once**. However if the student can demonstrate significant illness or misadventure at the time of, or preceding, the assessment task they may apply for Special Consideration. If Special Consideration is granted the student may sit another, different examination at a time specified by the Faculty. This policy holds for both internally and externally administered examinations. The University's Special Consideration Policy may be viewed at:
http://www.usyd.edu.au/studentcentre/exams/spec_con.shtml

- **Do students have to pass the examination within a certain time?**

If students fail a unit of study, they are allowed to re-enrol in this unit of study at the next available opportunity. However, if they fail this unit of study a second time they must Show Cause as to why they should not be excluded from the Faculty for a period of two years (presuming that the student has been offered appropriate support under the "At Risk" program – *see Standard 6: Admissions and Students*) . Students have 10 years with which to complete the BVSc degree.

- **Do students have to pass an examination before they can start another course?**

The Faculty has introduced a degree of flexibility into the curriculum to address students who have failed units of study. This flexibility is predominantly aimed at students enrolled in the first 3 years as they adapt to University life. Students repeating units of study may, with the permission of the Faculty, enrol in one or more units of study in the following year of the course. However, students may only take these units of study if they can still attend 90% of lectures and all the practical classes of the unit of study they are repeating. In addition, occasional units of study have prerequisite subjects and so can only be taken if these subjects have been successfully completed. The pre-requisites are outlined in the Faculty handbook.

There is a barrier to progression at the end of Year 3, whereby all subjects in Years 1-3 must be successfully completed before progression to the clinical years. In addition, students may not progress to Year 5 rotations until they have completed all Year 4 subjects and have demonstrated proficiency in the safe handling of animals.

7.8.4 Evaluation of Teaching

Describe the method(s) to assess the quality of teaching used in the establishment. Indicate whether evaluation is an establishment procedure, or one set up by individual departments, by students, or by individuals. Describe the role of students in the evaluation of teaching and teachers. Describe the follow-up given to evaluation.

One of the major strengths of the Faculty of Veterinary Science is its commitment to ongoing evaluation and review of its curriculum. Feedback from students and graduates has been fundamental to course revisions and major curricular changes. The Faculty is highly regarded within the University for its continual monitoring and quality improvement within units of study and across the curriculum through an open processes of evaluation, receiving and acting on feedback through student and peer review.

Evaluation of the student learning experience occurs at several levels; unit of study evaluations (USEs), student course experience questionnaire (SCEQs) and course experience questionnaires (CEQs). All of these programs are managed by the University's

Institute of Teaching and Learning (ITL).

Annual surveys for USEs are conducted using a new, faculty–specific form for USEs, developed in collaboration with the ITL (*available upon request during site visit*). Most of the questions on the USE form are aligned closely with those in the SCEQ and CEQ so that areas of concern revealed by SCEQ and CEQ surveys can be "drilled down" to the individual subject level. The process of USE surveys has been centralised in the Faculty to a Quality Assurance Officer, which has improved compliance and attainment of a complete data set.

Unit of study evaluations using the new ITL forms commenced in 2001 (in alignment with the new curriculum) with all units of study surveyed. Ongoing evaluation is now conducted strategically in response to either student demand, recognition of a need for improvement or on a tri-annual basis for each unit of study. Survey results are prepared by the ITL, reviewed by the Faculty's Learning & Teaching (L&T) Committee and are made available to staff and students on the Faculty Intranet and are presented at Faculty meetings. Unit of study co-ordinators are required to report on USE results to the L&T committee at the end of each semester and outline improvements to be made in response to the survey results and student comments. Students are subsequently informed by unit and Year co-ordinators on their feedback and on the action taken to rectify areas of concern, thus ensuring a continuing process of evaluation and improvement. This comprehensive approach has been very successful in creating a climate of accountability, peer support and recognition for teaching and learning quality in the Faculty and which has been recognized by the University.

The SCEQ is conducted every two years and provides course evaluation by year of enrolment and are conducted annually by the ITL. The University's Quality Assurance Officer evaluates results and reports back to Faculty's with both quantitative and qualitative data. The most recent analysis (2005 SCEQ) was particularly pleasing in that the summary SCEQ data has shown a continual trend for improvement in most key scales and Faculty achieved the highest scores of any Faculty in the University for Overall Satisfaction and the second highest scores for Good Teaching, Clear Goals and Standards, Generic Skills and Learning Community. The qualitative data also revealed that a high percentage of students commented on the high standard of teaching within the Faculty and reflects the student satisfaction with this aspect of their degree experience. For example, the students commented that "the teaching was motivating, stimulating and challenging".

A number of areas of concern were also outlined in this report and include appropriate workload and assessment. Both of these areas were ranked poorly by the students and will be the focus of future attention for the TLC and the Faculty. The entire SCEQ report for undergraduate student experience from 2000 to 2005 is available upon request during the site visit. In addition, more SCEQ results are discussed in *Standard 12: Outcomes Asssessment.*

The CEQ evaluates the whole BVSc program and are conducted on new graduates by the ITL. Results of recent CEQ surveys are discussed in *Standard 12: Outcomes Asssessment.*

Additional to the student evaluation processes described above, a process of peer-evaluation and mentorship is supported and encouraged within the Faculty. This is predominantly organised through the BVSc subcommittee, the Year teaching groups and through activities conducted during the Graduate Certificate. For example alumni of the Graduate Certificate are encouraged to continue mentoring junior staff after completion of the program. Finally, a variety of benchmarking activities occur within the Faculty where members of staff are financially supported to benchmark their unit of study with similar units of study either nationally or internationally.

7. 9 Student Welfare

Describe the facilities (not related to the teaching program) which the establishment provides for students (accommodation, sports, recreation, canteen, restaurant etc).

Describe the guidance offered by the establishment (or its parent institution) for students with problems (social problems, study problems, career development, job selection etc).

Student Facilities (not related to the teaching program)
The University of Sydney and the University of Sydney Union operate a diversity of facilities for students – these include social, cultural, religious and sporting facilities/activities and student support services (detailed information is provided at www.studentcentre.usyd.edu.au & www.usydunion.com/services).

Within the Faculty precinct on the Sydney campus, students have a common room with a commercial catering service and student photocopier. On the Camden campus, the University offers accommodation at Nepean Hall (room only + catering) & Nepean lodge (self-catering) and, for social activities, a common room & outdoor BBQ area.

The Veterinary Society is a student organization which arranges social events, a Year 1 student mentoring scheme, textbook discounts, assists with the Year 1 orientation program and offers 2 scholarships to support Year 5 students.

Student guidance and support
Students who experience problems may access a number of support services which include:-

- *University Counselling Service*: individual consultations + workshops on depression and examination anxiety and organisational and communication skills & time management (www.usyd.edu.au/stuserv/counselling)
- *University Disability Service*: individual consultations, support equipment/ facilities/ examination modification, advise to Faculty on disability issues and provision of appropriate assistance to students. (www.usyd.edu.au/stuserv/disability)
- *Koori Centre* student advisors: assist indigenous students and liaise with Faculty tutorial support and admission matters
- *University Learning Centre*: provide workshops/online learning resources in relation to learning strategies, study techniques, oral & written communication skills, time management
- *Faculty Associate Dean Students and two Sub Deans Students* (1 Sub Dean attends the Camden campus 2 days/week) who work with individual students, teaching staff and University support service staff to achieve outcomes that improve the student's ability to cope with their studies and improve academic performance
- Faculty support tutorials for Year 1 students in Chemistry, Veterinary Anatomy & Physiology

The development of a structured mentoring scheme for Year 5 veterinary students is in progress. Under direction of Dr C Hawke, Mr J Baguley and Dr V Bars mentor schemes are being researched and input obtained from Faculty staff, students, veterinarians in Faculty partner practices and psychologists.

In relation to career development and job selection, the University's career centre personal careers advice and workshops. Within the Faculty, career opportunities, career development, CV preparation and workplace selection are included within the Professional Practice stream of units that extends through the curriculum.

7. 10 Comments

Please provide information about the role of the school's curriculum committee, how the committee operates to review units of study and how students provide input into the work of this committee.

Comment on the participation of students in the design and monitoring of courses and the curriculum in general.

The L&T committee has jurisdiction over all teaching matters within the Faculty. Thus, they are responsible for both curriculum development as well as review of teaching. This committee meets 4 times a year. The Faculty L&T committee has been subdivided into various SubCommittees (*see Standard 1; Organisation for details of the SubCommittees*) in order to better focus on the specific needs of different sections of the Faculty. The BVSc SubCommittee, also meets 4 times a year and has oversight of the veterinary degree, its development and review. The committee structure has been discussed in earlier sections of this Standard.

The Faculty of Veterinary Science is committed to an open and transparent process of teaching evaluation. The system whereby units of study are evaluated is described in section 7.8.4. This system is administered by the ITL, but results are reviewed by the Faculty and its L&T committee. Co-ordinators for all reviewed units of study are required to submit a written report on their USE results to the L&T committee, which are discussed at a subsequent L&T meeting. Student representatives from all years of the curriculum are present at these meetings, have access to these reports and are specifically asked for their input. A second tier of unit of study review is provided by the Year teaching groups, who offer constructive feedback for further improvement of units of study.

Student input to all functions and decisions of the L&T committee is welcomed and student representatives are encouraged to return to their years and provide a report on the deliberations of these meetings. Individual students may contribute to unit of study or curriculum review by either approaching the unit of study co-ordinator directly or through their student representative. A second committee (Staff Student Liaison Committee) also meets twice a year and is a forum whereby students may provide feedback on specific units of study or teaching matters in general. Finally, if students feel that they are not being attended to at these levels, they may approach the Year co-ordinator, the SubDean BVSc, the Associate Dean L&T or the Associate Dean Students with their concerns.

Students representatives are also invited to all curriculum review and design days, and their input is welcomed. In addition, any major initiatives or curriculum changes will be emailed to all students for their comment and specific lunchtime discussions are organised to debate the proposed changes.

Comment on the role of the veterinary profession and wider community in curriculum review.

An important means of curriculum assessment and review is oversight by the accreditation authorities such as VSAAC and AVMA. The recommendations of these committees are taken very seriously, and the Faculty and University endeavour (where possible) to implement all recommendations. During the previous VSAAC visit (2004), our responses to recommendations from 2001 were outlined in detail and VSAAC commented very positively on our actions. No further recommendations were made at this time. However, the RCVS asked to have a short site visit regarding Food Safety and Abattoir placements in 2005. As a result of this visit, several innovative changes have been made to this section of the curriculum and the RCVS has responded that they were pleased to receive our detailed update of these changes and that the Committee found these changes to be fully satisfactory. This short report is available on request during the site visit.

External advice regarding curricular matters is also provided by the External Advisory Committee (*see Standard 1 for the composition of this committee*). In addition, feedback and advise from practitioners is obtained during specific sessions at the annual Partner Practice conference devoted to educational advances. Finally, members of the wider community are invited to all Faculty review days.

Comment on the role of external examiners and the use of these examiners to improve course design.

The role of external examiners has been discussed previously (Section 7.8.3). In addition, a specific example was provided whereby feedback from external examiners induced changes to our assessment practice, resulting in better evaluation of students particularly of important generic graduate attributes.

7. 11 Suggestions

Indicate how the examination system can be improved in such aspects as time consumption, efficacy, fairness and selectivity?

Student and staff workload remain a concern for the Faculty, with one of the main contributors to this high workload being assessment. The Faculty has introduced what we believe to be a fairer method of assessment by determining that all units of study must have multiple assessment tasks and a variety of types of assessment. However, this has increased

workload for students and staff alike. We are cognisant of this fact and one of the main tasks for the newly formed Year groups is to address the issue of number, timing and types of assessment within each Semester. Their recommendations have helped decrease the number of assessment tasks, have them more appropriately spaced and better aligned between the different units of study. These changes have also been reflected in improved student perceptions of both assessment and workload in a number of units of study. The Faculty will continue to monitor these tasks and address the issue of workload through curriculum review and revision.

Indicate how the assessment of clinical skills (particularly in relation to desired Competences and RCVS Day 1 Competences) can be improved?

Plans for improvement of assessment of clinical skills include:

(i) employment of a clinical instructor in primary care small animal medicine and surgery and improved development of assessable competencies in this unit of study for clinical skills.

(ii) similarly, individual clinical competencies for horses and production animals to be more clearly assessed for each student along the lines of the "blue book" at Massey university.

(iii) increased utilisation of a digital heart-sound system which enables students to record, characterise and diagnose arrhythmias and murmurs in dogs and cats, including the development of formative and summative case-based assessments.

What can be done to (further) improve the quality of teaching?

The Faculty is constantly striving to improve the undergraduate and postgraduate experiences of our students on a wide variety of fronts. The Faculty has, we believe, a deserved reputation of providing outstanding teaching within the courses we offer. We are strongly reflective about our teaching performances and we will continue this level of retrospection and self-evaluation to ensure the Faculty continues to offer a world-class and progressive learning environment for its students.

Appendices Curriculum (Standard 7)

Table 7.1 General table of curriculum hours taken by all students

	Hours of training					
	Lectures	Practical Work	Tutorials	Clinical Work	Other*	Total
Year 1	336	225.5	26		18	605.5
Year 2	369	180	39		24	612
Year 3	388	126	79		39	632
Year 4 (Incl. PVP§)	323	214	84		12	633
Year 5				230 (Days)		230 (Days)

* *workshops, group work & independent learning*
§ *PVP = Preparation for Veterinary Practice*

Tables 7.2 Yearly curricula

Year 1 curriculum

Subject	Hours of training					
	Lectures	Practical work	Tutorials	Clinical work	Other *	Total
Animal Husbandry 1 A	43	24				67
Animal Husbandry 1B	32	60				92
Cell Biology 1A	35	10				45
Cell Biology 1B	43	24	4			71
Chemistry	52	27				79
Professional Practice 1A	18				18	36
Professional Practice 1B	30	9				39
Veterinary Anatomy & Physiology 1A	32	37	12			81
Veterinary Anatomy & Physiology 1B	51	34.5	10			95.5
Total	336	225.5	26		18	605.5

* *workshops & group work*

Year 2 curriculum

Subject	Hours of training					
	Lectures	Practical work	Tutorials	Clinical work	Other *	Total
Animal Digestion & Nutrition	62	19	10			90
Genetics & Biometry	52	13	13			78
Professional Practice 2	20	6			24	50
Veterinary Anatomy & Physiology 2A	66	23	9			98
Veterinary Anatomy & Physiology 2B	58	39	4			101
Equine Anatomy	13	52				65
Principles of Disease	61	11				72
Veterinary Conservation Biology	37	17	3			57
Total	369	180	39		24	612

* *workshops, group work & independent learning*

Year 3 curriculum
Hours of training

Subject	Lectures	Practical work	Supervised work (Tutorials)	Clinical work	Other *	Total
Animal Behaviour and Animal Welfare Science	16	26				42
Veterinary Microbiology	50	9	2			61
Veterinary Parasitology	39	20	6			65
Veterinary Pathology	54	26	28			108
Veterinary Pharmacology & Toxicology	30		26			56
Animal Disease	65	25			20	110
Professional Practice 3	20		11		11	42
Veterinary Clinical Sciences	78	12	6			96
Veterinary Public Health	36	8	8			52
Total	388	126	87		31	632

** workshops, group work & industry visits*

Year 4 curriculum
Hours of training

Subject	Lectures	Practical work	Tutorials	Clinical work	Other *	Total
Animal Husbandry Practical Report					*25 (Days)*	
Veterinary Anaesthesia	26	10	4			40
Veterinary Medicine and Clinical Pathology	61	9	34			104
Veterinary Radiology	26		26			52
Veterinary Surgery	44	24				68
Bird Health & Production	34	18				52
Horse Medicine and Surgery	36	60	4			100
Pig Health and Production	24	8			12	44
Ruminant Health & Production	58	85	12			155
Preparation Veterinary Practice	14		4			18
Total	323	214	84		12	633**

** independent learning & extramural farm work*
*** Total does not include Animal Husbandry Practical Report*

Year 5 curriculum

Subject	Clinical work (days)
Primary Accession Medicine & Surgery (UVCS)	21
Anaesthesia & Intensive Care (UVCS)	21
Small Animal Surgery (UVCS)	21
Referral Medicine (UVCS)	21
Rural Mixed Practice 1 (UVCC)	26
Rural Mixed Practice 2 (extramural)	24
Rural Public Practice (extramural)	24
Small Animal Practice (extramural)	24
Elective Rotation 1	24
Elective Rotation 2	24
Total	**230 (Days)**

Table 7.3 Curriculum hours in subjects taken by every student

Subject	Hours in Course					
	Lectures	Practical Work	Supervised Work (Tutorials)	Clinical work	Other*	Total
A. Basic subjects						
Anatomy (incl. histology and embryology)	143	192	5			340
Biochemistry and molecular biology	28	2				30
Biology (incl. cell biology)	53	23	2			78
Biophysics						
Biostatistics	26	13				39
Chemistry	52	27				79
Epidemiology	17		2			19
Genetics	30	13				43
Immunology	14	2				16
Microbiology	114	28	10			152
Parasitology	71	37	16			124
Pathological anatomy (macroscopic & microscopic)	111	49	4		10**	174
Pharmacology	37		19			56
Physiology	111	32.5	22			165.5
Physiopathology	9	9	2			20
Scientific and technical information and documentation methods	6.5	4	3.5		4**	18
Toxicology (incl. environmental pollution)	16		2		2 cases	18
B. Animal Production						
Agronomy	6	15				21
Animal behaviour (incl. behavioural disorders)	16	10				26
Animal husbandry (incl. Livestock Production systems)	59	72	3			134
Animal nutrition and feeding	47				2 cases	47
Animal protection and welfare	16	4			2 cases	20
Environmental protection	5					5
Preventative veterinary medicine (incl. health monitoring programmes)	15				2 cases	15
Reproduction (incl. artificial breeding methods)	7	9	2		2 cases	18
Rural economics	4				2 cases	4
C. Clinical Subjects						
Anaesthetics	30.5	6	24			60.5
Clinical examination and diagnosis and laboratory diagnostic methods	55	33	1		2 cases	89
Clinical medicine	245	114	51	230 days	2 cases	410
Diagnostic imaging	70	12	28			110

Obstetrics	2	42	2	2 cases	**46**
Reproduction disorders	5	11		2 cases	**16**
State veterinary medicine, zoonoses, public health and forensic medicine	18	1		2 cases	**19**
Surgery	51.5	61	5	2 cases	**117.5**
Therapeutics	15	15	5	2 cases	**35**
D. Food Hygiene					
Certification of food production units	2				**2**
Food certification	1				**1**
Food hygiene and food quality (incl. legislation)	6				**6**
Food inspection, particularly food of animal origin	1	7			**8**
Food science and technology		1			**1**
E. Professional Knowledge					
Practice management	41	6	1	24*	**72**
Professional ethics	34	8	1		**43**
Veterinary certification and report writing	2	12			**14**
Veterinary legislation	21		1		**22**

* Independent leaning project
** Major teamwork project

NOTE:
1. Subjects not included in list & therefore not recorded elsewhere:
Generic professional skills development:

Teamwork:	2hr
Personal & professional leadership:	3hr

2. 'Scientific and technical information and documentation methods' includes classes related to scientific written & oral communication.

Table 7.4 Curriculum hours in other subjects taken by every student

	Hours in course					
Subject	**Lectures**	**Practical Work**	**Supervised Work**	**Clinical Work**	**Other**	**Total**
Elective Rotation 1				24 Days		**24 Days**
Elective Rotation 2				24 Days		**24 Days**
Elective in Animal Husbandry Practical Work		28 Days				**28 Days**

Table 7.5 Courses organised as elective subjects
Not applicable

Table 7.6 Optional subjects in the veterinary curriculum

Subject	Year (s) offered	Hours of training: Hours in Course					
		Lectures	Practical work	Tutorials	Clinical work	Other *	Total
Additional Elective Rotations§	Year 5				14-48 (Days)		
Elective Animal Husbandry Placement	Year 2 – Year 3					28 (Days)	
Large animal training at University owned farm	Year 2 - Year 3					5 (Days)	

* extra extramural work undertaken at farms, veterinary practices, wildlife centres or zoos etc
§ undertaken during scheduled vacation rotations

Table 7.7 Obligatory extramural work that students must undertake as part of Animal Husbandry Practical Report

Nature of work	Minimum period	Year of the course in which work is carried out
Commercial Horse Property	5 Days	Year 2 – Year 3
Commercial Beef Cattle Property	5 Days	Year 2 – Year 3
Commercial Dairy Cattle Property	5 Days	Year 2 – Year 3
Commercial Sheep Property	5 Days	Year 2 – Year 3
Commercial Piggery	3 Days	Year 2 – Year 3
Commercial Poultry Property	2 Days	Year 2 – Year 3
Intramural large animal training	5 Days	Year 1 – Year 2
Abattoir visit	5 Days	Year 3
Total	**35 days**	

Table 7.7 Obligatory extramural work that students must undertake as part of Clinical Rotations

Nature of work	Minimum period	Year of the course in which work is carried out
Small Animal Practice	24 Days	Year 5
Rural Mixed Practice	24 Days	Year 5
Rural Public Practice	24 Days	Year 5
Elective Rotation 1	24 Days	Year 5
Elective Rotation 2	24 Days	Year 5
Total	**120 days**	

Determination of Curriculum Ratios;

Theoretical training (d) = number of hrs of lectures, tutorial and others = 1737
Practical classes (e_1) = number of hrs of practical classes = 745.5
Extramural studies (e_2) = number of hrs of e/m animal husbandry + abattoir = 280
Clinical training (e_3) = number or hrs of intra and extramural clinical = 1840

$$RE = \frac{d}{e} = \frac{1737}{2865.5} = \frac{1}{1.650}$$ **satisfactory is** $\frac{1}{>1}$

$$RC = \frac{e_3}{d+e_1+e_2} = \frac{1840}{2762.5} = \frac{1}{1.501}$$ **satisfactory is** $\frac{1}{<4}$

Table 7.8 Faculty of Veterinary Science: Revised Veterinary Graduate Attributes

1 **Research and Inquiry.** *Graduates of the Faculty of Veterinary Science will be able to create new knowledge and understanding through the process of research and inquiry.*

a) Apply an understanding of normal and abnormal animal structure, function and behaviour for diagnosis, management and prevention of animal disease

b) Identify, define and analyse problems affecting animal health and production

c) Collect and use the best available evidence to diagnose, prevent, cure or manage animal health problems

d) Maintain effective skills for identifying and responding to emerging animal diseases and issues

e) Engage in research-based practice, using critical judgment and creativity

f) Collaborate in the generation, application and dissemination of new knowledge to benefit animal health and welfare

g) Have an informed respect for the principles, methods, standards, values and boundaries of their discipline and the capacity to contribute to and question these

h) Critically evaluate existing understandings and reflect on the limitations of their own knowledge

2 **Information Literacy.** *Graduates of the Faculty of Veterinary Science will be able to use information effectively in a range of contexts.*

a) Identify acquire, store, retrieve, interpret, critically evaluate and use scientific, clinical and other relevant information in print and electronic sources

b) Prepare a scientific or clinical report in a form suitable for publication and presentation

c) Use networked services and information technology efficiently in research, professional development and practice management

d) Investigate emerging technologies and determine their relevance to the profession

3 **Personal and Intellectual Autonomy.** *Graduates of the Faculty of Veterinary Science will be able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges.*

a) Make independent, informed professional decisions and implement them in managing animal health

b) Evaluate one's own abilities, identify deficiencies and commit to continuing professional learning

c) Identify situations where additional expertise is necessary, seek specialist services and refer patients professionally

d) Prepare a *curriculum vitae*, identify work opportunities, apply, present at interview and negotiate an employment contract

e) Have the capability and commitment to initiate and respond to change

f) Develop a capacity for managing one's own personal, physical, emotional and social needs to sustain satisfaction and contribution to profession

4 **Ethical, Social and Professional Understanding.** *Graduates of the Faculty of Veterinary Science will hold personal values and beliefs consistent with their role as responsible members of local, national, international and professional communities.*

a) Practice veterinary science professionally:
- ✓ with primary consideration to the welfare of the animals in care
- ✓ to uphold the ethical standards and legal requirements of the profession
- ✓ to meet the health and safety needs of oneself, colleagues, ancillary staff, clients and the community
- ✓ with colleagues, ancillary staff, clients and the public with respect and without discrimination

b) Apply the principles of animal welfare to the humane management and euthanasia of animals

c) Ensure animal products are free of chemical residues and other contaminants

d) Protect the natural environment, maintain biodiversity and conserve endangered species

e) Ensure sustainability of agricultural activities through the practice of veterinary science on livestock that considers the economic and social needs of farms and the livestock industries

f) Practice veterinary science **in Australia** with awareness of the need to keep Australia free of non-endemic diseases and ensure exported animals are free of disease

g) Practice veterinary science **in countries other than Australia** with awareness of local differences

5 **Communication.** *Graduates of the Faculty of Veterinary Science will recognise and value communication as a tool for negotiating and creating new understanding, interacting with others, and furthering their own learning.*

a) Communicate effectively in English, both orally and in writing, with a variety of recipients and audiences and using a variety of media

b) Consult effectively, eliciting the history and clinical signs from clients systematically and with sensitivity

c) Prepare and maintain records of clients and animals and the results of veterinary interventions and procedures promptly, accurately and concisely

d) Work effectively as individuals, partners and as members of a team

e) Contribute or lead a group in cooperative problem-solving

f) Communicate with colleagues, ancillary staff, clients and the public with patience, empathy and compassion

Chapter 8 Clinical Resources and Clinical Learning and Teaching (Standard 8)

8.1 Specific Information on the Practical Clinical Training

Introduction

Clinical instruction in earlier years of the curriculum and during Year 5 has been designed to ensure students achieve Veterinary Graduate Attributes by the completion of their studies. The attributes of veterinary graduates from the University of Sydney Faculty of Veterinary Science *(see **Table 7.8**)* are consistent with the knowledge, skills and attitudes defined by the Day 1 skills of the RCVS and with the generic Supervisor Report Form used for assessment in all final year units of study *(see **Fig. 7** located in the Appendices for this Standard).* Evidence for the achievement of this goal is provided in the following sections of this chapter and in data derived from extramural assessors and final year students presented during site visit upon request.

The majority of practical, hands-on clinical experience is provided during Year 5 placements which on the basis of face-to-face teaching time currently represents 35% of the curriculum. From 2009, this will be increased to 38%.

The focus of this section of the report will be clinical learning and teaching in the final year of the curriculum. The integration of this clinical teaching with the earlier years of the curriculum has been discussed in Standard 7: Curriculum. This Standard provides an overview of the final year program followed by specific discussion of the separate, but complementary learning experiences provided by intramural and extramural clinical rotations.

Clinical Instruction and Practice

Clinical instruction and practice during the final year of the curriculum is achieved through a program of intramural and extramural rotations. The program encourages final year students to take responsibility for their learning and offers opportunities in a wide range of career options as well as in-depth experience in companion and production animal practice settings. There is rigorous assessment of interns by intramural and extramural supervisors as well as academics. Assessment is linked to the achievement of graduate attributes and this is a personally demanding and intellectually challenging year.

Structure of the Clinical Learning Program

Educational objectives, Faculty-based student learning outcomes, the structure of the final year program and assessment requirements and instruments are provided to students in Year 4 via lectures, discussions, written materials and web based resources (Virtual Veterinary Campus). Written materials (intern handbooks) and web based resources (Virtual Veterinary Campus and WebCT) are also provided in Year 5. Supervising practitioners are also provided with this material via the Educational Partners website, hard copies of intern handbooks and Faculty correspondence. In addition, an annual Partners in Veterinary Education Conference is organised by the Faculty to update practitioners on changes to the program and gather feedback. Supervising practitioners are also encouraged to discuss expectations, requirements and intern defined learning outcomes during clinical rotations. The Faculty staff who supervise the final year students are also provided with access to this material (web based and hard copy).

Intramural rotations (units of study) are delivered over intensive periods of 3-4 weeks to small groups of interns. These groups vary in size depending upon the task or process of instruction from one-on-one interactions to small group tutorials (less than 10 interns per group).

Core extramural rotations in small animal and rural mixed practice are delivered over intensive periods of 4 weeks and generally involve one intern being placed at one particular practice. There are some exceptions for large practices such as the RSPCA Yagoona and

the number of interns at any one time is set by the Faculty in consultation with the practice. Many rural public practice placements are completed as pairs of interns and formal elective units of study generally involve one-on-one interactions similar to core extramural rotations in small animal and rural mixed practice.

Clearly defined learning outcomes are provided for each unit of study during Year 5 (these are available from the Intramural and Extramural Handbooks) and these are assessed through the Supervisor Report Form and Faculty-based assignment submissions. In addition, interns are encouraged through the development of their own individual learning outcomes for each rotation to become independent learners in authentic professional settings. The process is designed to model future opportunities for continuing professional development.

8. 2 Ensuring the Quality of Clinical Training

Organisation and Quality Assurance

Year 5 clinical learning and teaching rotations are based around a program schedule which is allocated at the completion of Year 3. There are 12 rotations of 4 weeks duration linked to specific units of study and vacation time as presented in Table 8.1; Year 5 Units of Study *(located in the Appendices of this Standard)*.

Students enter preferences for rotation schedule groups (1-12) which determine when intramural rotations will be completed. The program for remaining rotation requirements is determined by the student.

During Year 4, students are required to enter preferences for placements to complete individual units of study (rotations). For core extramural rotations, placements are confined to Faculty Accredited Database Placements whilst for elective rotations, non-database placements are also available. Non-database placements must be approved by the Year 5 Coordinator and Unit of Study Coordinator.

Quality assurance during the final year program is achieved through a systems framework focusing upon inputs, processes, outputs and feedback derived from all stakeholders and is broadly outlined in Table 8.2 – 8.4 (*located in the Appendices for this Standard)*. A large amount of data is collected and analysed each year and used in a process of continual improvement of the final year program. Since its inception in 2004 (after a trial in 2003) a number of changes have resulted which include greater flexibility in the rotation schedule, greater flexibility in rotation dates, more focused written assessments, changes to the Supervisor Report Form *(Fig. 7 located in the Appendices for this Standard)*, changes to intramural assessments and improved processes for delivery of feedback to interns and practitioners.

Intramural Clinical Tuition

The Faculty maintains two specialist veterinary teaching hospitals, the University Veterinary Centres at Sydney (UVCS) and Camden (UVCC). These centres aim to provide:

- quality care for large and small animals
- excellent clinical instruction for veterinary students
- internationally recognised clinical research.

The **UVCS** is located close to the Sydney CBD. It employs 16 full-time veterinarians, 2 part-time consultants and 22 general staff (including veterinary nurses). Stage one of the UVCS redevelopment (Valentine Charlton Cat Centre, VCCC) was completed in November 2004. The VCCC (Australia's only stand alone tertiary feline referral facility) is a world-class referral and primary accession facility, staffed by specialists in Feline Medicine and Small Animal Surgery. Building for Stage 2 of the redevelopment of the Dog Centre begins in June 2007 and is expected to be completed in December 2007. This stage includes a major equipment grant providing MRI, CT, new videoendoscopy, laparoscopy and arthroscopy equipment. The UVCS treats predominantly dogs and cats however, exotics make up a reasonable proportion of patient visits. In addition to specialist referral cases, the established and varied clientele of the UVCS provides interns with the opportunity to learn from a wide range of day to day primary accession cases, and to interact extensively with clients. The VSF is currently

fundraising to enable further redevelopment of both veterinary centres and planning for stages 3-6 is now underway.

The **UVCC** is located at Camden, about 70 km south-west of Sydney. It was established as a large animal clinic over 50 years ago, but a small animal facility has been added in response to increasing urbanisation of the surrounding area. The UVCC operates a 24–hour emergency service for small and large animals and it is planned to develop this service further. Units include in–house and ambulatory services for horses, alpacas, cattle and small ruminants, small animal medicine and surgery and dermatology. The UVCC provides an excellent representation of a large commercial hospital.

Both Veterinary Centres are supported by in-house clinical and anatomical pathology services, anaesthesia and critical care. Each Veterinary Centre has a Director and section heads in the different discipline areas. Administrative staff are responsible for customer service and general financial activities, under the direction of the Hospital Director. The University Veterinary Centres both face the difficult challenge of remaining financially sustainable and presenting to interns a view of private veterinary practice in the face of the sometimes conflicting demands of teaching. The mechanisms by which the Veterinary Centres address these challenges present an additional, useful, learning opportunity for final year students.

Maximising the Caseload for Teaching

Through the two teaching hospitals and the University Farms, the Faculty has always been in a good position to maintain high student/animal ratios. Clinic caseloads are provided in the Appendices *for Standard 5: Animals and Related Resources*.

Interns obtain valuable clinical experience by having a high level of patient responsibility at both University Veterinary Centres. Clinical Rounds are held daily and interns present cases to their peers, under the supervision of Faculty or Registrars. Interns answer questions, often concentrating on controversial features and practical issues facing private versus referral practices. Interns ask questions and explore all aspects from the basic mechanisms of diagnosis and treatment to client relations, animal welfare, professional interaction with referring veterinarians, financial constraints and medicolegal responsibilities.

Grand Rounds are held on the Sydney campus 2 to 3 times each semester and are attended by students from all years. Case studies range from didactic presentations to interactive discussions. Interns present cases at daily medicine and surgery hospital rounds. They are quizzed on the diagnosis and treatment strategies, the pathophysiology of the disease process, client interaction and other relevant points. At the UVCC, in addition to daily rounds, interns present a weekly PowerPoint case study or case series, discussing the presenting signs, diagnosis, treatment and prognosis to all staff and interns.

UVCS clinicians have developed an extensive audiovisual library for use in lectures, continuing education seminars and presentations at meetings such as the Australian College of Veterinary Scientists annual symposium. The Thyne Reid Teaching Innovation Unit is utilised extensively in preparing on-line case studies and other resources. A digital scanner has been installed in the Radiology Unit to ensure capture of useful images for teaching and research. A closed-circuit video camera has been installed in the main operating theatre to enable all interns to view surgical procedures and to enable videotaping of procedures for teaching purposes. Ultrasonographic and endoscopic procedures are also routinely videotaped for the same purposes. Interns have access to view the computerized account-keeping system. There are 2 clinical tutorial rooms in the UVCS.

Services and Activities within the University Veterinary Centres

There are a number of different services within the UVCS and UVCC that offer a variety of learning experiences for student interns:

The **Primary Accession Services** at the UVCS and UVCC aim to teach interns practical approaches to common conditions of dogs, cats, horses and cattle. The Services consult 6 days per week at the UVCS and 7 days per week (as required) at the UVCC. The clients comprise an extremely varied demographic with a wide range of financial resources. Activities

range from vaccinations and general health checkups to poisonings, snake bites, emergency trauma (car accidents), colic, desexings and dental prophylaxis and extraction.

The Primary Accession Service at UVCS also participates in the Cat Protection Society's Cat Adoption Program. The UVCS cat adoption program is one of the most successful in New South Wales and enables interns to handle cats, perform a variety of procedures, explore issues of animal welfare and population control and monitor animals postoperatively.

The **Referral Small Animal Medicine Service** comprises two Specialists (two small animal medicine positions are vacant), two Senior Registrars and a Resident in Feline Medicine. In addition, a specialist academic appointment at the UVCC is being advertised at the time of writing. The Referral Medicine Service has a reputation for clinical and research excellence in a number of fields including infectious diseases, endocrinology and oncology. The caseload averages 59 cases per week.

Services include: chemotherapy, radioactive iodine, endoscopy, echocardiography, ECG monitors, BAER testing. Advanced imaging (CT and MRI) is available at a local hospital and will be available in house as part of the stage 2 redevelopment due for completion by the end of 2007. The UVCS radioactive iodine treatment program for hyperthyroidism sees 3-4 cases/ week giving interns regular access to elderly cats with a wide variety of clinical problems.

The learning is structured (daily clinical rounds, scheduled tutorials) to ensure formal opportunities, but flexible to maximize learning from clinical material. A team approach to clinical teaching involving senior clinicians, registrars, postgraduate interns, final year interns and nurses is taken. Undergraduate interns take the patient history and perform the initial physical examination. Small group sizes (2-4 interns) allows close supervision, but necessitates teaching all year round. Interns are entrusted with a high degree of clinical responsibility for patient care and the medical record. The opportunity to explore clinical reasoning empowers and inspires students. Client communication skills are practised and reflected upon. Students are inspired to display and engage in discussions about professionalism and veterinary ethics. In particular, graduate attributes regarding personal and intellectual autonomy, ethical, social and professional understanding, communication and financial responsibility are addressed.

A **Dermatology Service** is provided at both Veterinary Centres by registered specialists. Interns practice routine history taking and physical examination, followed by collection of appropriate samples for diagnostic tests, including skin scrapings, cytology samples, hair samples for trichograms and fungal culture, skin biopsies, and blood samples. Interns also learn about intradermal allergy testing, and are often responsible for administering and monitoring sedation. Rounds or tutorials are held at the end of each day, providing valuable clinical experience in small and large animals.

The **Surgery Service** at the UVCS traditionally employs four veterinarians (two Senior Surgeons, one Senior Registrar and one Resident). The two academic surgeons have specialist qualifications and provide expertise in soft tissue surgery, orthopaedics and neurosurgery. Surgical procedures and cases managed by interns during their rotations range in complexity from simple lump removals to advanced thoracic and vascular surgery, depending on the case range presented during their rotation. While routine desexing is not generally undertaken by the Surgery Service, young dogs, cats or ferrets can be accessed from welfare organizations when the clinical service is quiet. Normal canine cadavers are available for interns to practice surgical techniques or review clinical anatomy.

The **Radiology Service** has a number of staff at the UVCS including a qualified radiographer, two board certified [ACVR] veterinary radiologists who are registered as veterinary specialists and a sonologist. The current caseload is adequate in number and variety for teaching purposes. Interns are responsible for scheduling all diagnostic imaging procedures for patients in their care and taking radiographs under supervision. Interns participate in simple ultrasonographic procedures and assist with more complex studies.

Small group radiology tutorials are conducted where interns present cases for discussion. Each intern participates in 7 hours of dedicated small group learning. Self-directed learning is also encouraged. Interns are directed to a variety of internet resources, computer programs developed for the UVCS and CD-ROMs developed by UC Davis and used with permission.

The **Anaesthesia Service** at UVCS employs three veterinarians (one Unit Head and two Registrars) and two technical staff. The Unit services primarily cats and dogs, ferrets and rabbits. A growing number of 'exotic species' give interns a broad exposure to animals they will encounter in practice. Fourth year students participate in clinic activities 2 afternoons per week to familiarise them with different anaesthetic agents, techniques and equipment and enable some practise in basic techniques such as animal handling, catheterisation, venipuncture, intubation and attachment of monitoring equipment.

The Anaesthesia Service at the UVCC consists of two registered Specialists in Anaesthesia and Critical care and one veterinarian in a specialist training program. The Service is responsible for both large and small animal anaesthesia cases at the UVCC, as well as emergency and critical care. Interns participate in small and large animal cases in and out of hours and in the emergency and critical care aspects of the small animal practice. This is complemented by informal rounds daily on the cases. The anaesthesia interns participate in the desexing clinic each week. Tutorials on anaesthetic machines, morbidity/mortality, formulating analgesia plans and selection of premedicants are delivered at the end of the day.

The **Equine Service** at the UVCC offers both primary accession and referral services. There is an ambulatory service, outpatient and full hospital facilities. The equine caseload is substantial with a full spectrum of cases from routine surgical and medical conditions to more involved disorders with an even spread of soft tissue and orthopaedic cases. The ambulatory service provides routine activities including basic reproductive services. The caseload and type of cases seen fluctuates seasonally and from day to day making the learning experience variable.

In addition to regular rotations, interns are rostered on to the ambulatory, after hours and intensive care services. Two Faculty supported positions supervise interactive clinical rounds daily. A centre of excellence in camelid medicine and surgery has been established. Similarly a strong clinical research program provides the interns with hands on access to a variety of large animal species.

The **Bovine and Small Ruminants Unit** at the UVCC services the University and commercial dairies, including herd health programs, providing ample teaching opportunities. The regional practice comprises herd health and intensive production animal management as well as routine work on small farms and rural acreages. There is adequate access to other production animal species including sheep, goats and the occasional pig. A strength of this Service is that interns get ample practical instruction in pregnancy diagnosis, assisted calving, Caesarean section and other routine surgical procedures. Travelling time provides an opportunity for case discussion.

Since May 2001 the Faculty has operated a **Canine Desexing Clinic** at the UVCC. Approximately 10 dogs per week are spayed or neutered by interns at the UVCC each week. Interns perform pre-surgical examinations, anaesthesia, surgery and post-operative management under staff supervision. The desexing clinic was conceived as one solution to the growing concern in the veterinary profession and the wider community about the use of animals in teaching and research while acknowledging the need to produce graduates with excellent surgical skills. Run in conjunction with Blacktown Council Pound, the program has won excellent reviews from participating students and provides an important service to the community. The purpose built clinic is situated across the road from the UVCC in the Shute building. Each Tuesday, dogs are admitted for castration or ovariohysterectomy. They are desexed on Wednesday and returned to Blacktown Pound on the Thursday. All animals are subsequently re-homed.

Both University Veterinary Centres have **Diagnostic Pathology and Laboratory Medicine Services** with in-house clinical pathology laboratories. These services provide gross anatomical pathology for large and small animals as well as laboratory and microbiological services. These services are open to outside veterinarians. These services are also an important source of teaching for large and small animal gross pathology. In addition, the facility at the UVCC is the only large animal commercial pathology service in NSW.

Unique Clinical Education Resources and Programs

The University Veterinary Centres are fortunate in having access to a number of excellent clinical teaching resources:

- The purpose-built Valentine Charlton Cat Centre has gained international recognition as a state-of-the-art facility for provision of teaching and academic clinical research.
- A busy Primary Care Practice (see above).
- Excellent working relationships with a number of animal welfare agencies, including the Royal Society for the Prevention of Cruelty to Animals, the Cat Protection Society, the Ferret Rescue Society and Monika's Doggie Rescues.
- The UVCS treats a large number of ferrets, providing interns with an appreciation of comparative anatomy, physiology, general management practices and disease (particularly endocrine and infectious diseases).
- A canine desexing clinic.
- A strong clinical research output. Staff members have international reputations in infectious diseases, soft tissue surgery, neurology, equine and camelid practice. Staff of the UVCS have published > 15 peer reviewed research papers and book chapters during the last 2 years. Active clinical research is beneficial in alerting interns to the importance of enquiry and analysis, generation of knowledge and scientific rigour in evaluating the literature and interpreting results.

Involvement of Interns and Feedback

During UVCS rotations, interns are responsible for the management and treatment of the hospitalised cases under the supervision of the clinical staff. Interns work alone or in pairs to take a detailed history from the owner, perform a thorough physical examination and formulate an approach to diagnosis and treatment of the patient. Once they have completed the initial observations, a clinician attends the case and discusses further options with them. When patients are admitted to hospital, interns assume responsibility for the patient and are intricately involved in ongoing patient management.

Primary Accession Medicine and Surgery - UVCS

This unit of study delivered through the UVCS requires interns to perform all aspects of the physical examination, collection of samples for pre-anaesthetic screening or other routine tests, administer vaccines or other injections and discuss routine management and health issues with the clients. They are responsible for processing request forms, sedating animals and accompanying them during diagnostic imaging, amongst other things. Interns examine and exercise the animals in their care at least twice a day, recording vital parameters and administering medication as required. They discuss ongoing case management with their supervisor and institute appropriate changes.

This rotation is greatly appreciated by interns both with respect to achievement of learning outcomes and available learning opportunities, *more information available during site visit upon request*. Similarly, the effectiveness of this program is demonstrated by supervisor assessments of intern performance which whilst overwhelmingly positive also demonstrates rigour through the identification of unsatisfactory and marginal performances, *more information available during site visit upon request*.

Anaesthesia and Intensive Care - UVCS

This unit of study focusing upon small animals requires interns to perform basic anaesthetic techniques such as developing an anaesthetic plan, administering pre-anaesthetic medication, inserting intravenous cannulae, anaesthetic induction and tracheal intubation. They monitor the animals during anaesthesia and manipulate the anaesthetic as required, after discussion with their supervisor. Interns are also responsible for developing a plan for postoperative analgesia in collaboration with their supervisor.

This is a particularly effective, practical and highly regarded unit of study by interns as evidenced by feedback (*available during site visit upon request*) and as manifest through supervisor assessments of intern performance (*available during site visit upon request*).

Small Animal Surgery - UVCS

In surgery, interns assist with surgical procedures on all cases for which they are responsible. The amount of surgery interns actually perform varies widely, depending on the problem

being treated, the confidence and skill of the intern, the confidence of the surgeon in being able to adequately supervise the intern, the clinical condition of the patient and time constraints. Interns are responsible for postoperative monitoring, and communications with clients unless there are unexpected issues more appropriately discussed by the clinician.

Again, intern feedback and supervisor report form data are summarised (*available during site visit upon request*) and clearly reveal the quality and effectiveness of this unit of study.

Bovine Service - UVCC

Interns participating in the Bovine Service are heavily involved with the history taking, animal handling, clinical procedures and data collection for herd health or individual animals. The Service is primarily ambulatory, and cases or herd visits are discussed during transit to and from the farm.

Excellent feedback from interns completing this Service (*available during site visit upon request*) and requests by new graduates has resulted in plans to provide greater exposure to veterinary services to production animals. Supervisor report form data are also provided during the site visit upon request.

Equine Service - UVCC

During rotations through the Equine Service, interns participate in physical examinations, lameness examinations and routine diagnostic procedures. Interns are responsible for the treatment and management of hospitalized patients, are involved in the taking and reading of radiographs, the collection and interpretation of diagnostic procedures and in routine surgical and medical procedures. Intern feedback and supervisor assessments are provided during site visit upon request.

Anaesthesia Service - UVCC

During the anaesthesia rotation at the UVCC, interns participate as the principal anaesthetists in the canine desexing clinic. The interns are supervised by a small animal clinician and an anaesthetist and are responsible for the entire procedure from planning suitable anaesthesia to performing the surgery and aftercare under the supervision of qualified staff. Interns also assist staff anaesthetists with the anaesthesia of client-owned large and small animals admitted to the UVCC.

This unit of study is also highly regarded by interns and supervisor assessments complement UVCS anaesthesia and intensive care feedback (*available during site visit upon request*).

Additional Experiences at the UVCC

Interns completing their UVCC rotation are rostered on to night treatments and after-hours management of cases in small animal, bovine and equine services. Veterinary and/or nursing staff oversee these activities.

Interns participate in the gross post-mortem procedures on small animal, bovine and equine cases. The interns in each service also interact with pathology staff in regards to laboratory and microbiological samples.

Integration of Expertise and Resources in Clinical Teaching

The Faculty employs full-time veterinarians with advanced qualifications or specialist registration in the following clinical areas: Feline Medicine, (currently recruiting for 2 small animal medicine positions) Surgery (Soft Tissue, Orthopaedics and Neurosurgery), Equine Medicine, Equine Surgery, Food Animal Medicine and Surgery, Anaesthesia and Critical Care, and Pathology. The Faculty also employs part-time consultants in Diagnostic Imaging, Dermatology and Canine Medicine.

These veterinarians are considered subject-matter experts on the basis of specialist registration with the Australian Veterinary Boards Conference (the majority), or as a result of advanced qualifications obtained from the Australian College of Veterinary Scientists (MACVSc and FACVSc) and extensive experience in referral practice.

Technological resources that contribute to clinical instruction include the following:

- plain radiography
- image intensification

- state of the art ultrasonography including a Phillips 5000 Colour flow Doppler ultrasound machine
- videoendoscopy including equine gastroscopy
- electrodiagnostic equipment for electromyography, nerve conduction studies, auditory evoked potentials
- advanced anaesthetic maintenance and monitoring equipment
- closed–circuit video monitoring of surgical procedures
- radiotelemetric and Holter ECG monitoring
- videoarthroscopy
- high speed treadmill videoendoscopy
- equine standing MRI

Computed tomography and small animal magnetic resonance imaging are currently available at a private facility 5 minutes drive from the UVCS. They will available on-site by the end of 2007. Nuclear scintigraphy is available at a private veterinary practice (Gladesville Veterinary Hospital) owned by Associate Professor Max Zuber (part-time Adjunct Academic Staff member working at the UVCS).

Interns have access to the internet and the University Library catalogue and databases through all computer terminals in the UVCC and UVCS. There are also dedicated computer facilities for interns at both facilities as well as a video recorder and monitor, X-ray viewer and a large range of textbooks (The Valentine Charlton Library). Interns have access to the Camden Library, internet and the University Library catalogue and databases on site and access to the variety of libraries maintained by the Clinic and staff within the hospital at request.

Medical Records

The medical record keeping system is computerized (Animal Intelligence Software or AIS) (http://www.animalintelligence.com), for individual and herd health records. Observations, progress notes, clinical pathology results, diagnostic imaging, anaesthesia and surgery reports, and ongoing communications with referring veterinarians and the clients are entered directly onto the computer. A hard–copy is still kept of letters and other documents from referring vets, radiographic and ultrasonographic images and in–hospital treatment instruction sheets. A large number of networked stations are present in different regions of the clinics, and in staff offices, providing easy access to clinical information, client contact details and results of diagnostic tests. Records from cases seen prior to 2001 or information pertaining to treatment prior to 2001 are stored in hard–copy.

Interns are involved in the daily maintenance of medical records for cases to which they are assigned.

Extramural Clinical Tuition

Interns undertake at least 20 weeks of clinical extramural training in final year and the achievement of educational outcomes and the quality of clinical instruction is manifest in student feedback data (*available during site visit upon request*). It is clear from this data that interns learn actively during these placements and rate the practical opportunities provided for learning in extramural clinical situations very highly.

Intern performance during extramural rotations is monitored through telephone contact with supervisors (at least twice per rotation); individual intern assessments (final grades for each rotation are based upon a combination of supervisor report and submitted assignments); and quarterly summaries of supervisor report form data. Supervisor report form data for each unit of study is *available during site visit upon request*.

At the completion of each rotation interns are provided with assignment feedback from academic staff as well as Supervisor Report Form grades and extramural supervisors are provided with intern feedback via a web based system. Feedback for both parties is also encouraged through the recommended meetings during rotations.

Final Year Assessment Policy

A summary of assessments during final year is provided in **Table 8.3** (*located in the Appendices of this Standard*). In addition, written examinations were introduced for UVCC placements in 2007 in order to reinforce fundamental principles presented earlier in the course. A similar examination based on companion animal scenarios will be provided in 2008 during UVCS placements.

Supervisor Report Form assessments indicate the level of progress in nine criteria and an overall summary (*available during site visit upon request*). Unsatisfactory or marginal performance in two or more criteria or overall requires the intern to complete an intramural based remediation rotation. The focus of a remedial rotation is to address the area or areas of deficiency provided in the Supervisor Report Form assessment.

If, at the completion of this remedial rotation the intern is still deemed to be making insufficient progress remediation continues for a further rotation. Marginal performance or suggestions for remediation by extramural supervisors are generally also followed up by a remedial rotation where appropriate. A successful remediation rotation will result in the grade for the associated unit of study being converted from incomplete to satisfactory. Unsatisfactory performance will result in the failure of the unit of study and a repeat rotation will be organised during the following semester.

Submitted assignments complement Supervisor Report Form assessments and again, if marginal the intern will be required to re-submit however if unsatisfactory, the intern will be rated as unsatisfactory overall for the unit of study.

8. 3 Comments

Comment on the strengths of the current clinical training program as well as the challenges and opportunities.

The purpose of this clinical training program is to better prepare graduates for veterinary practice through the creation of this final transition year. Feedback from students during final year and in exit surveys as well as feedback from intramural and extramural supervisors clearly supports the achievement of this goal. The new clinical teaching program has ultimately achieved superior outcomes for students, enabled more focused, one on one education of students during intramural clinics, and provided an opportunity for quality assurance through input prior to graduation by future employers. Administrative processes and feedback to Educational Partners have been recognised by the profession as superior to other current extramural programs.

The main challenges for the program relate to the availability of resources. The cost of clinical teaching is a continuing difficulty for the Faculty as presented earlier in this report and this new program has added significant costs with respect to administration. For students, the costs of accommodation, travel and decreased opportunities for work during final year are a continual difficulty. Ultimately, the complementary program of extramural rotations relies upon sustaining the goodwill of the profession and successful partnerships with industry.

These challenges are being met through a number of initiatives and opportunities. The cost of clinical teaching is better understood by the University and additional resources have been provided for the final year program. Further opportunities to assist students with opportunities in rural and remote areas are available through collaborations with other Faculties within the University such as Medicine, Health Sciences and Agriculture. There is continued interest in sponsorship of benefits to Educational Partners and a number of organisations are providing scholarships and awards for final year students due to increased awareness of the problems faced by students. The number of Educational Partners however continues to increase and the program is attracting greater interest from overseas organisations hopeful of employing our graduates.

8. 4 Suggestions

What plans are there to strengthen areas of clinical training where the school sees weaknesses?

How does the Faculty deal with the challenge of providing high quality clinical training in an environment where profits must be generated for the clinical operations?

What is being done to foster the involvement of specialist practices in clinical training of students?

Potential weaknesses in the current program include limitations to resources in the intramural clinics and data collected from intramural and extramural supervisor report forms.

New facilities at the UVCS will enable expansion of services in canine medicine and surgery as will additional appointments in this area. Similarly, the recent appointment of a small animal specialist at UVCC will increase caseload and the quality of the learning experience provided. The bovine unit continues to expand and an additional one month rotation through UVCC from 2009 will enhance intramural large animal teaching quality.

Intramural and extramural supervisor feedback is continuously analysed and integrated with teaching in the earlier years. The main areas defining 'students at risk' of completing this program have been initial animal handling skills and communication and interpersonal skills. This feedback has resulted in changes to animal husbandry skills training throughout the course and the professional practice program. The weaknesses of international students' communication skills have been addressed through raising the English language requirements for entry and for more rigorous assessment of written and oral communication skills during the earlier years of the course. As the program has developed there has been enhancement of both formal and informal communication channels resulting in improved preparation of students for the challenges associated with final year.

Recognition of the cost of clinical teaching by the Faculty and the University has been an important factor in maintaining the quality of clinical teaching in an environment of limited financial resources.

Both the UVCS and UVCC have access to a number of veterinary specialists and training in this area is further supplemented by the elective program. A wide variety of specialist opportunities related to species, discipline and additional career opportunities are available through our Educational Partner program.

Appendices

Clinical Resources and Clinical Learning and Teaching (Standard 8)

Fig. 7: 2007 Supervisor Report Form

2007 Supervisor's Report Form

Notes for Rotation Supervisors

If you didn't observe the intern on particular areas below, please consult with others on staff who did, or just mark *Not Observed*. Please submit an online version or return the form to the Coordinator for Extramural Placements ASAP (see address on bottom of the form).

Veterinary Intern Name: _____

Student Placement ID Number _____

Practice/Site Name: _____

Address: _____

_____

Unit of Study _____ Rotation Number: _____

Placement Start Date _____ Placement Finish Date: _____ Days: _____

Supervisor's Name: _____

Email Address: _____ Phone: _____

In completing your assessment of our intern, consider the key terms and description of each of the following ten criteria. Each criterion contains descriptors which link to defined graduate attributes or sets of knowledge, skills and attitudes. The grades provided indicate the level of progress towards achieving these attributes by graduation.

Key to Grades:

Unsatisfactory	Insufficient progress towards meeting the descriptors within this criterion by graduation with a definite requirement for remediation in a number of areas
Marginal	Requires some remediation to adequately progress towards meeting the descriptors within this criterion by graduation
Satisfactory	Generally meeting the expected level of progress for achieving this criterion by graduation
Proficient	Generally meeting and occasionally exceeding expectations for achieving this criterion by graduation
Outstanding	Consistently exceeding expectations for achieving this criterion by graduation

1. Understanding and application of knowledge (Research and Inquiry) * Key terms: understand, apply, integrate and recall									
Demonstrates an understanding of basic knowledge in the associated discipline or disciplines and consistently reveals an ability to recall, integrate and apply this knowledge in both common and unusual situations. Engages in research-based practice.									
Unsatisfactory	☐	**Marginal**	☐	**Satisfactory**	☐	**Proficient**	☐	**Outstanding**	☐

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Comments:

2. Data Collection (Information Literacy)

* Key terms: accurate, salient, repeatable, comprehensive/thorough and consistent

Demonstrates an ability to consistently acquire accurate (reliable and repeatable) and salient (valid and relevant) information. This information is organised, collated and presented in a manner that facilitates a sound basis to data analysis and conclusions.

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

3. Data Interpretation and Problem Solving (Research and Inquiry)

* Key terms: understand, integrate, evaluate, prioritise, logical

Demonstrates an ability to critically evaluate and prioritise information to formulate an informed response such as a suitable problem list, differential diagnoses or viable options and an ability to rule out improbable scenarios.

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

4. Decision Making and Planning (Personal and Intellectual Autonomy)

* Key terms: rational, practical, flexible, appropriate

Able to confidently initiate an appropriate and practical plan that will result in the likely resolution of or satisfactory approach to a problem. Demonstrates flexibility through changing decisions and plans where appropriate based upon research, critical evaluation, collaboration and the integration of additional relevant information..

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

5. Technical Competency (Personal and Intellectual Autonomy)

* Key terms: Organisation Organisation, safety, dexterity, confidence, reflection, self assessment

Demonstrates a clear understanding of knowledge and process with regard to the safe application of relevant skills through organisation and a confident approach. Demonstrates dexterity in the performance of relevant technical skills and an ability to reflect and develop plans for improvement.

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Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

6. Oral and Written Communication (Communication)

* Key terms: structured, logical, key aspects, clear, articulate, concise, consistent verbal and non-verbal

Able to effectively and logically structure messages (written and oral) to articulate key aspects in a clear and concise manner. Actively listens and seeks feedback to ensure accuracy of understanding of the message. Demonstrates consistency in verbal and non-verbal communication when delivering messages and receiving feedback.

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

7. Interpersonal (Communication)

* Key terms: teamwork teamwork, trust, collaboration, communication, initiative, leadership

The ability to actively and effectively develop trust in interactions with diverse people and at different levels. To establish collaborative relationships with other people and promote a team spirit through effective interaction, communication and participation. The ability to take initiative and to lead others where appropriate.

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

8. Professionalism (Ethical, Social and Professional Understanding)

* Key terms enthusiastic, reliable, courteous, punctual, responsible, self-awareness, ethical, respect, initiative, duty, commitment

Adopting a professional attitude to work: reliable, enthusiastic, punctual and courteous. Capable of evaluating one's own abilities, identifying deficiencies and demonstrating an awareness of when to seek advice. Demonstrates an understanding of professional ethical behaviour, a sense of duty, commitment to continuing professional learning and a willingness to take responsibility for actions.

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

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9. Humanistic values (Ethical, Social and Professional Understanding)

* Key terms: care, compassion, empathy, respect, context, behaviour

Understands and applies the priority of animal welfare, treats animals and people with compassion, respect and empathy.

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments:

10. Overall Evaluation

* This category summarises your overall impression of the level of competency of the intern with reference to this stage of the intern's progression in final year.

Unsatisfactory	☐	Marginal	☐	Satisfactory	☐	Proficient	☐	Outstanding	☐

Comments :

This category summarises your overall assessment of the intern's likelihood of attainment of the required graduate attributes to a satisfactory level by the end of this year as defined by knowledge, skills and attitudes reviewed in this form. One or more unsatisfactory ratings for items 1-9 or three or more marginal ratings would indicate definite concern. Interns with up to two marginal ratings for items 1-9 will generally require remediation in order to progress to a satisfactory level and we would appreciate your specific advice in these areas based upon your experience with the intern this rotation.

Definite Concern	☐	Likely with remediation	☐	Likely	☐	Very Likely	☐	Definitely	☐

Comments:

11. Communication Task

Was the communication task completed satisfactorily	Yes	☐	No	☐

Brief description of task completed:

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12. Written Assignment				
Have you sighted the intern's written assignment	Yes	☐	No	☐
Comments:				

13. Attendance		
Has the intern been absent during this rotation	Yes ☐	No ☐
Number of days absent	☐	Days
Comments:		

14. Additional Comments:	
Extramural Supervisor's Name	
Extramural Supervisor's Signature	
Date	

Please Return this Supervisor's Report Form to:

Coordinator Extramural Placements,

By mail:

Coordinator Extramural Placements,
J.D. Stewart Building B01, Room 218,
Faculty Of Veterinary Science
UNIVERSITY OF SYDNEY NSW 2006 AUSTRALIA

By fax:

02 9351 3056 (within Australia)
+61 2 9351 3056 (Outside of Australia)

Or complete this Supervisors Report on-line through the Partner Practices web site:
http://www.vetsci.usyd.edu.au/partners/

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Table 8.1 Year 5 Units of Study

Rotation Type	Number of Rotations	Unit of study	Duration
Intramural rotations at the University Veterinary Centre Sydney			
	3	Primary accession medicine and surgery	3 weeks
		Referral medicine	3 weeks
		Small animal surgery	3 weeks
		Anaesthesia and intensive care	3 weeks
Intramural rotations at the University Veterinary Centre Camden*			
	1	Equine	2 weeks
		Bovine	1 week
		Anaesthesia	1 week
Extramural core rotations			
	1	Small animal practice	4 weeks
	1	Rural mixed practice	4 weeks
	1	Rural public practice	4 weeks
Elective rotations (extramural and intramural opportunities)			
	1	Elective 1	4 weeks
	1	Elective 2	4 weeks
Vacation*			
	1	Vacation period	4 weeks
	1	Vacation period	4 weeks
	1	Vacation period	4 weeks

* From 2009 one vacation rotation will be replaced by an additional rotation through UVCC incorporating an increase in time through the equine and bovine services, a large animal pathology rotation and a small animal rotation.

8.2 Ensuring the Quality of Clinical Training

Table 8.2 Quality Assurance in Year 5 Clinical Instruction and Practice – Program Inputs

Component	Procedures	Feedback
Program inputs		
Students	Previous years of the curriculum prepare students for clinic based learning in Y5 in terms of knowledge, skills and attitudes	USE and SCEQ data for earlier years Y5 exit survey
	Preparation for Veterinary Practice in Y4 prepares students for the actual Y5 program	USE data
Staff	Two administrative staff are dedicated to extramural programs	CEQ data
	Web services coordinator for Y5, 50% of time is dedicated to management of Y5 web based materials and support	Web based services reviews and Y5 exit survey
	Clinic staff are involved in Y4 and Y5 teaching and supervision	USE data
	There are 2.5 full time academic staff devoted to teaching and administration of Professional Practice and Year 5 programs	

Table 8.3 **Quality Assurance in Year 5 Clinical Instruction and Practice – Program Processes**

Program processes	Procedures	Feedback
Partner Practitioners	Requirements and policies for database and non-database practices	Partner practice surveys
	Instructions through written materials (print and web), annual PIVE Conference and practice visits where possible	Review of policies linked to student and practitioner feedback
	UVCS Partner in Residence Program	Visitation schedule
	UVCS practitioner education evenings	Participant feedback and CPD database to be developed
Resources	Print resources and web based resources for students	Y5 exit survey
	PIVE Conference sponsorship and support	Conference evaluations
	Partner in Residence sponsorship and support	Partner practitioner feedback
Student processes	Preparation and development of knowledge, skills and attitudes linked to Y5 tasks and assessments is vertically integrated throughout the curriculum	Supervisor report form ratings from professional practice and animal husbandry
	Specific instruction for the variety of procedures, tasks and assessments in Y5 is provided in Preparation for Veterinary Practice	Supervisor report form ratings from Y5
	Supervisor report form data in Y5 is summarised and presented for each student after the placement has been completed	
	Supervisor meetings are required for the first week, mid point and end of the rotation in order to provide formative feedback on performance	Placement feedback and Y5 exit survey
Partner practitioner processes	Specific instruction is provided during sessions at the PIVE Conference	Conference feedback
	Program changes and feedback are also provided in a newsletter	Partners surveys
	Telephone contact at least twice per rotation to check students/interns	
	Specific student feedback is summarised and presented for each placement after the student has attended, based upon a standard placement feedback form	
Staff processes	Clinical teaching meetings and participation in PIVE Conference	USE data reflections and responses
	Clinical placement feedback is provided for each rotation (intramural and extramural) and summaries are provided across all placements annually	

Table 8.4 Quality Assurance in Year 5 Clinical Instruction and Practice – Program Outputs

Program outputs	Procedures	Feedback
Student evaluations	Students complete evaluations of their placement experience after each rotation	Placement and USE data summarised and presented to Faculty and PIVE Conference
	Students complete an exit survey each year	Summarised and presented to Faculty each year
	Formal SCEQ and CEQ data are also available for analysis	Provided to Faculty
Student assessments	Supervisor report forms completed by all intramural and extramural supervisors (same generic form)	Summaries each semester and marginal and unsatisfactory reports and items compiled each quarter Telephone contact with Faculty academic staff for students identified as at risk by teaching staff
	Faculty assessed student assignments for extramural placements complement supervisor report form data	Reported results are discussed at Year 5 teaching meetings

Table 8.5 Assessments associated with final-year placements

Placement	SRF	Written Assignment	CT	SK
University Veterinary Centre, Sydney (UVCS) - Anaesthesia	✓	ALL OF: Written pain management plan; oral and written complications report; record-keeping; oral case presentation; oral journal review	✓	✓
UVCS - Primary Care	✓	Oral case report with literature search	✓	AH
UVCS - Surgery	✓	Surgical discharge statement AND online case studies	✓	ST
UVCS - Referral Medicine	✓	Case log, discharge statement, night plan. One complete case record with relevant clinical research paper. One page summary of how paper contributed to understanding of the case.	✓	x
University Veterinary Centre, Camden	✓	ALL OF: Equine case report (1000 words); group case presentation; regular oral reports at case rounds	✓	✓
Small Animal Practice	✓	Case log book of 4 cases (2500 words)	✓	✓
Rural Mixed Practice	✓	Case log book of 4 cases (2500 words)	✓	✓
Rural Public Practice	✓	Written report (2000 words) AND reflective journal (500 words)	✓	✓
Compulsory elective	✓	Written report (2500 words), OR case log book of 4 cases (2500 words), OR reflective journal (2500 words)	✓	✓
Additional elective	✓	x	✓	✓

SRF Supervisor Report Form
CT Communication Task
SK Skills Report
AH Animal-handling task
ST Skills Test – lameness examination for dogs

Chapter 9 Academic and Support Staff (Standard 9)

9.1 Factual Information

Strengths of the academic and support staff in fulfilling the educational programme and Faculty vision

In fulfilling the Faculty's vision to be an international leader in veterinary and animal bioscience education and research, the 2005-2010 Strategic Plan identifies three key areas that inform the staffing profile. These are the

- education of high quality, adaptable graduates and postgraduates who will provide scientific and clinical leadership for the professions and the community,
- provision of high quality research and clinical advances that meet the needs of the professions, industry, and the community, and the
- provision of scientific and clinical service and leadership for the professions, industry and the community.

9.2 Ratios

This information is provided in Table 9.4 in the Appendices for this Standard. These ratios are within the satisfactory recommendations.

Outline how the allocation of staff to the Faculty is determined.

The recommended Faculty staffing profile is based on the discipline expertise required to deliver the educational programme, the areas of strategic research and clinical service, with due regard for equitable workload across the Faculty. It maintains a strong core of Faculty and support staff and seeks to attract and retain the highest quality staff through professional career paths, staff development and the opportunity for scholarly endeavour. The Faculty has particular strengths in clinical medicine and surgery, farm animal health and production, animal science and genomics, wildlife health and conservation, anatomy, and pathobiology and infectious diseases. Faculty staff have a wide range of academic and professional qualifications to deliver the expertise required to fulfil the objectives of the strategic plan. *Staff appointments are decided at Faculty level by the Dean and Faculty Executive Committee based on recommendations from the Learning and Teaching and Research Advisory Committees.*

Outline how the allocation of staff to the Departments (or other units) within the Faculty is determined.

The Faculty of Veterinary Science at the University of Sydney does not have a Departmental structure. For Faculty allocations of staff to various units see comments above.

Indicate whether there are difficulties in recruiting or retaining staff.

Describe (if appropriate) any relevant trends or changes in staff levels or the ability to fill vacancies over the past decade.

Federal government funding to Universities has decreased substantially over the past 10-15 years. The Faculty has adapted to this environment by increasing fee income and improving connections with the professions and other external stakeholders to ensure continuing financial support and relevance of our degree. New industry-funded Chairs and Sesquicentenary-funded lectureships have assisted in the maintenance of clinical and pre-clinical Faculty. The maintenance of numbers and quality of staff in our Teaching Hospitals has been assisted by the negotiation of a new industrial agreement for clinical employees, the establishment of a discretionary salary loading for clinical appointments on the basis of market and merit factors, and an injection of $7 million from the University for new equipment

in 2007-2008. These, together with significant salary increases, have improved the Faculty's ability to attract and retain quality clinical staff.

Since 2000, 80 new academic/veterinary staff *have been* appointed balanced by the loss of 60 through retirement and job change. Of the retirements, most were research-only employees, whose employment is entirely dependent on research grants. None of the remaining retirements resulted in a loss of discipline or specialty, as these have been replaced with either new appointments or by the services of adjunct academics and consultants. New academic appointments have been funded through a combination of University resources and considerable success in the development of key industry partnerships, resulting in a vastly improved alignment of staff expertise with the curriculum. Industry supported Chairs have been established in Dairy Science, Farm Animal Health, Veterinary Public Health, Poultry Science, Functional Genomics and Wildlife Health and Conservation. New Chairs have also been established in Veterinary Pathology, Animal Genetics and Reproduction. Leadership in the clinical care of companion animals has been supported by new appointments in Small Animal Medicine, Surgery, Anaesthesia, Pharmacology, Professional Practice and Equine Medicine and Surgery. Through University funding from the Sesquicentenary scheme and other sources, the Faculty has appointed new academics in Epidemiology, Animal Biotechnology, Veterinary Anatomy, Cell Biology, Animal Science, Aquaculture, Pig Health and Production, Intensive Industries, Ruminant Production and Health, Reproduction, Microbiology, Pathobiology and Parasitology.

In 2006, the University implemented a review of the staffing profile of the Faculty by an independent consultant. One of the main recommendations of this review was that the Faculty provide an opportunity for all academic and general staff to avail themselves of voluntary redundancies or pre-retirement contracts under the University staffing flexibility guidelines. As a result of this process, 7 academic and 16 general staff will be assisted to retire early from the Faculty by the end of 2008. This will provide considerable flexibility to restructure some aspects of the Faculty's staffing profile, particularly technical support staff, allowing the appointment of new staff to service current teaching needs.

Indicate whether it is straightforward to employ additional staff from service income (e.g. from revenues of clinical or diagnostic work).

Appointment of staff from clinical and diagnostic income is straightforward and not different from those funded centrally. Recommendations regarding replacement staff and renewal of contracts are made by the Hospital Directors and approved by the Dean or Pro Dean.

Describe the regulations governing outside work, including consultations and private practice, by staff working in the Faculty.

Under the "Outside Earnings" policy of the University, academic staff are also entitled to undertake up to one day per week of consultancy or other professional work, subject to approval by the Dean and Executive dean. Within the veterinary teaching hospitals, staff are also provided with time for professional advancement, such as specialist training, and gain recognition through reclassification and the allocation of market loadings. In addition to individual development, the Faculty provides both internal and external opportunities for staff development, including veterinary membership and specialist training programs that allow registration in Australia by the State Veterinary Boards, fulfilling minimum standards set by the Australian College of Veterinary Scientists [http://www.acvs.org.au/].

Describe the possibilities and financial provisions for the academic staff to:
a) attend scientific meetings
b) go on sabbatical leave

a) Scientific Meetings: Staff are encouraged to attend scientific meetings and conferences relevant to their discipline or for personal development. Attendance at such meetings is generally funded through individual research grants or clinic funds. However, funds are also made available by the Research Advisory Committee to assist attendance by early career staff.

b) Sabbatical Leave: Academic staff are entitled to apply for up to six months of special study leave (SSP) for every three years of service at the University of Sydney [http://www.usyd.edu.au/hr/policydev/SSP_policy_10oct06.pdf]. SSP is financially supported by the Faculty through the provision of return airfares and an expense allowance for the academic and their immediate family. The purpose of SSP is to provide a period of relief from University duties to enable academics to keep up with recent developments in their subject and to maintain their scholarship by research and contact with leading academics and professionals at other institutions. Shorter periods of academic leave of up to three months are also available.

9.3 Comments

Comment on the numbers of personnel in the various categories.

The Faculty has a total of 243 staff (**Table 9.2**) working 224 Full Time Equivalents (*FTE; Table 9.1 in the Appendices of this Standard*). Of the 86 academic staff, 54 are veterinarians. Most also have Masters or PhD qualifications. Seventeen are registered specialists with the Australasian Veterinary Boards Conference or are American Board Certified. Of the 86 academic staff, 77 are allocated to the non-clinical Faculty and 9 to the Teaching Hospitals (**Table 9.2**). The latter include clinical registrars who are veterinarians employed by the Teaching Hospitals that provide clinical instruction to students (**Table 9.5**). The 86 academics deliver 79 FTE of which 48 are budgeted and 31 are non-budgeted, the latter mainly funded from research and clinical income (**Table 9.1**) and a total of 81 FTE are responsible for undergraduate teaching (**Table 9.3**). The Faculty has a total of 157 support staff of which 61 support teaching and research in the non-clinical Faculty, 52 provide clinical teaching support and 44 are administrative staff (Table 9.2). Of the 145 FTE support staff, 56 are budgeted and 89 are funded from non-budgeted sources (**Table 9.1**). The current ratios of staff:student (1:7.5) and teaching:support staff (1:1.9) are within the satisfactory recommendations (Table 9.4).

Comment on the salary levels, especially those of academic staff in relation to the level of income in the private sectors.

Current salary levels for academic staff range from $50,296 per annum for Associate Lecturers (Level A, Step 1) to $136,515 for full Professors (Level E; see table 9.5 for explanation of academic ranks). With recent enterprise bargaining agreements (EBA), and the voluntary offer of Australian Workplace Awards, academic salaries at the University of Sydney have become more competitive with the private sector but, at the senior registrar level, not necessarily rivalling those available for veterinary specialists in private practice. The Faculty is working with the University to introduce senior clinical academic appointments (e.g. HEO Level 10, Clinical Professor). These positions, with clinical and teaching roles only, will assist Faculty to attract and retain senior specialists and to redress salary differences with private practice. There are agreed academic salary increases of 8% built into the current EBA between March 2007 and September 2008.

External consultants, adjunct and honorary academics have been strategically appointed and are invaluable in assisting with development and delivery of teaching and learning. These comprise 6 Emeritus Professors, 1 Honorary Professor, 44 Honorary Associates, 8 Adjunct Professors, 1 Adjunct Associate Professor, 4 Adjunct Senior Lecturers and 2 Adjunct Lecturers. These provide up-to-date knowledge in a broad range of disciplines, including specialist instruction in radiology, dermatology, ophthalmology, and animal behavioural problems.

Comment on the ease or difficulty of recruiting and retaining personnel.

For this comment see **Section 9.2**.

Comment on the percentage of veterinarians in the academic staff.

Of the 86 academic staff, 54 are veterinarians (~63%). Most also have Masters or PhD qualifications. Seventeen are registered specialists with the Australasian Veterinary Boards Conference or are American Board Certified.

Additional Information

Promotion and tenure

Promotion: The career paths of staff are actively mentored within the Faculty, including strong encouragement to seek promotion and meet the University guidelines for performance. Applications for promotion are called for annually. To be promoted, a staff member must demonstrate sustained achievement at the current level of appointment and the capacity to perform at the level to which they are seeking promotion. The criteria for assessment of performance are outlined in the Position Classification Standards and University Criteria for Progression [http://www.usyd.edu.au/provost/promotions.shtml]. Staff promotion is based on contributions to **teaching**, including student course evaluations, postgraduate teaching and leadership in teaching, **research productivity**, including publications, research funding, invitations to major national and international conferences and research leadership, according to the University guidelines and **service,** including contribution to Faculty committees, acting as unit of study co-ordinators, or provision of service to industry groups. Academics are expected to have a programme balanced between teaching, research and service, in a ratio approximating 40, 40 and 20%, respectively. Assessment of applications for promotion is made by a committee of peers through a process designed to enable fair and consistent application of standards.

Tenure: Staff are employed either on a "continuing" basis, equivalent to a tenured appointment, or on a fixed-term "contract" basis. The latter, equivalent to non-tenured employment, is required by the University's EBA if a position is "externally" funded. This includes funds received from industry and government research funding bodies, as well as from the operations of the University Teaching Hospitals. The Faculty strategy is to provide maximum contract lengths for these staff with renewal of contracts based on satisfactory performance. Continuing appointments (equivalent to tenure) are subject to a 6 month period of probation followed by a confirmation period of up to three years. Confirmation conditions are set at the time of appointment and include key performance indicators for teaching, research and service.

The University is committed to ensuring equal employment opportunity for all staff. In order to meet this commitment, the University ensures that it does not discriminate against employees (including in promotion) on the grounds of sex, pregnancy, race (including colour, ethnic background or national identity), marital status, disability, sexual preference, transgender status, political or religious belief or age. Discrimination against any employee on these grounds is a breach of University policy and, in most circumstances, is unlawful.

Further Staff professional development opportunities

The University and Faculty Strategic Plans place emphasis on objectives related to attracting, encouraging, developing and rewarding staff. Excellence in teaching, research, scholarship and administration, and achieving prominence in international and professional communities are clearly delineated. The Faculty recognizes that its staff is its most important and valuable asset, and that the quality of the Faculty's achievements is largely dependent upon the quality and commitment of all staff. To sustain excellence, review progress and recognize and reward staff, the University has introduced a Performance Management and Development (PM&D) program [http://www.usyd.edu.au/sydneylearning/pmd/index.shtml]. The Faculty of Veterinary Science participated in the pilot of this program in 2000 and has embraced it ever since. The PM&D process is centred on individual staff reviews, conducted by trained reviewers, with outcomes focused on the recognition of achievements through constructive and supportive feedback and evaluation. Personal development plans are constructed and staff are encouraged to undertake personal and skill development courses through the staff support and development unit of the University (SydneyLearning), or other appropriate training based on these plans.

In line with the Faculty's focus on delivering an outstanding student-centred learning experience, all new academics are required to complete the graduate certificate in higher education offered by the University's Institute for Teaching and Learning. In addition, each new staff member is provided an office, desk, computer and $5,000 in start-up funds. Following a six month induction period, each new staff member is allocated to a mentor, with the responsibility of assisting integration into appropriate teaching and research teams. With a view to ensuring cultural sustainability for our teaching, research and service programs, an "in-house" **leadership development program** has been established to develop staff self-knowledge, understanding of others, successful team work and operating across traditional boundaries. More than 65 staff have now completed this program which is designed to focus all staff on the principles of the Faculty Culture Statement, particularly on sharing personal responsibility for the Faculty's future.

New programs and staff recruitment.

The veterinary science curriculum at the University of Sydney is student-centred, problem-based, and built on the provision of the highest quality clinical care to companion and native animals, and on increased interaction with the veterinary profession. To deliver this curriculum we have restructured our resources to provide students with increased clinical exposure, including partnering with extra-mural Partner Practices. Principal and staff veterinarians in these carefully chosen practices are given special honorary status in the Faculty as well as training and educational support in their teaching roles.

The expansion of student numbers in the Animal and Veterinary Bioscience program required the recruitment of additional academic and support staff in 2006 and 2007. However, the bulk of the teaching in the final two years of the curriculum for this degree, formerly offered as a bachelor of animal science by the Faculty of Agriculture, is already provided by veterinary staff, and the new program has provided considerably increased revenue to the Faculty. This new undergraduate program has created opportunities for synergies with the BVSc, particularly during years 1-3, and has allowed increased core staffing that has a flow-on effect to the teaching of pre-clinical and para-clinical veterinary disciplines.

There are no other major changes in direction likely to affect staffing and recruitment. The Faculty has a succession plan with a policy of replacing all key positions after resignation or retirement and creating new positions to meet changes in global veterinary education. In addition, recently retired staff are often offered honorary appointments that allow for their continued contribution to teaching and research.

9.4 Suggestions

If the ratios for your establishment do not fall into the category "satisfactory" according to the indicative table in Annex I, what can be done to improve the ratios?

Not applicable as the ratios are satisfactory.

Appendices Academic and Support Staff (Standard 9)

Table 9.1 Personnel in the establishment

	Budgeted (FTE)	Non-budgeted (FTE)	Total (FTE)
1. Academic staff			
a) Teaching staff	45.6	0	45.6
b) Research staff	2.0	22.2	24.2
c) Others (teaching/clinical)	0.5	8.7	9.2
d) Total academic staff	**48.1**	**30.9**	**79.0**
2. Support staff			
e) responsible for the care and treatment of animals	2.5	54.1	56.6
f) responsible for the preparation of practical and clinical teaching	10.0	2.5	12.5
g) responsible for administration, general services, maintenance, etc.	24.8	14.9	39.7
h) engaged in research work	18.8	17.4	36.2
i) Others (please specify)	0	0	0
j) Total support staff	**56.1**	**88.9**	**145.0**
3. Total staff (d + j)	**104.2**	**119.8**	**224.0**

Table 9.2 Allocation of personnel to the units

Name of Department	Academic Staff					Support Staff		
	Professor	Associate Professor	Senior Lecturer	Lecturer	Associate Lecturer	Technical/ animal carers		Admin/ general
						Teaching	Research	
Veterinary Science	11	12	15	24	15	22	39	33
Veterinary Clinics	0	2	5	2	0	52	0	11

Table 9.3 Personnel[1] responsible for undergraduate teaching

A. Number of budgeted and non-budgeted teaching staff involved in undergraduate teaching	77
B. Number of research staff involved in undergraduate teaching	4
C. Total number of personnel responsible for undergraduate teaching (A + B).	81

[1]Note: these data only include academic staff plus veterinary registrars whose main responsibility is teaching; general staff involved in teaching are excluded.

Table 9.4 Ratios

Ratio: teaching staff/undergraduate students		
Number of teaching staff	81	1
Number of undergraduate students	608	7.5
Ratio: teaching staff/support staff		
Number of teaching staff	81	1
Number of support staff	157	1.9

Table 9.5 Explanatory Ranks for academic staff

Academic Classification	Description	British Equivalent	US Equivalent
Level E	Professor	Professor	Department Chair
Level D	Associate Professor	Reader	Professor
Level C	Senior Lecturer	Senior Lecturer	Associate Professor
Level B	Lecturer	Assistant Lecturer	x
Level A	Associate Lecturer	Tutor	Instructor
HEO 8/9	Senior Registrar	x	x
HEO 6/7	Registrar	x	x

Chapter 10 Postgraduate Training and Continuing Education (Standard 10)

10.1 Factual Information

10.1.1 Postgraduate Clinical Training Courses (interns and residents)

Twenty four veterinarians are currently undergoing training in the 2 University Veterinary Centres (UVCS and UVCC). Of 12 interns, 6 are enrolled in postgraduate coursework in the Faculty due to a policy of compulsory postgraduate training for interns at the UVCS. Ten residents are in training between the 2 centres and 2 students working with ruminants are undertaking research programs.

Do students involved in this training receive a grant or salary?

All of the above students/interns/residents receive salaries from the University Veterinary Centres. At the UVCS, all salaried interns are enrolled part-time in an articulated (Graduate Certificate, Graduate Diploma and Master of Veterinary Studies) program. At the UVCC, Ruminants is the only area where current students are enrolled in formal university postgraduate coursework or research.

Indicate the extent to which training towards a diploma is combined with clinical training.

Indicate the percentage of graduate students who follow such training?

The small animal medicine resident at the UVCS is enrolled in a training programme with the European College of Veterinary Medicine. The equine surgery resident at the UVCC is enrolled in a training programme with the European College of Veterinary Surgeons. The dermatology, anaesthesia, feline, surgery and small animal medicine residents are enrolled in training programmes with the Australian College of Veterinary Scientists.

10.1.2 Taught Postgraduate Courses

The following postgraduate coursework programs are offered: Graduate Certificate, Graduate Diploma and Masters. The specific programs are outlined below, indicated by the year each program commenced and mode of delivery.

Program Title	Year	Mode of delivery
Veterinary Public Health Management	2003	Online/Residential
Animal Science (Genetics, Reproduction, and Nutrition)	2006	On-campus
Veterinary Studies (Veterinary Diagnostic Pathology, Small Animal Clinical Studies*, Equine Medicine & Surgery, Ruminant Medicine & Surgery, Production animals)	2007	Supervised (on-campus)
Veterinary Studies – no major	2007	Flexible**
Veterinary Public Health	2007	Online
Animal Breeding Management	2007	Online/Residential

* This program was designed to replace a previous Graduate Diploma in Veterinary Clinical Studies

** Able to select from all postgraduate units offered (which may be on-campus, online etc)

10.2 Comments

10.2.1 Supervised Postgraduate Training

Supervised postgraduate coursework enables the development of expertise under the guidance and modelled behaviour of an expert, until the expert's guidance and assistance is no longer necessary.

Supervised postgraduate coursework is offered in clinical and practical areas of study, such as small animal clinical studies. Recent veterinary graduates are highly focused on their role

as clinicians and often have difficulty identifying linkages between practice and research. The new postgraduate program at the University Veterinary Centre, Sydney (UVCS), enables postgraduate veterinary interns to identify these linkages, providing a crucial pathway from graduate veterinarian to clinical researcher.

Supervised research training is the primary mechanism for learning in research programs. In 2007, the Postgraduate Education & Research Training committee received the Vice-Chancellor's award for outstanding supervision and support of postgraduate research students.

10.2.2 Online and distance education for professional development

Since 2003 the Faculty has focused on developing postgraduate coursework that are accessible by participants working full time and relevant to the current needs of animal industries and the veterinary profession. Flexible study options are clearly crucial for graduate veterinarians and animal scientists, who are working full-time, may be located in remote regions and who are likely to also have personal and family constraints on their time. Our online programs enable access to courses from anywhere in the world, include collaborative approaches to solving authentic problems at a postgraduate level under the guidance of an acknowledged expert and creates connections between work, study, students and a variety of workplaces and real-world issues. In 2006, the Veterinary Public Health Management program received a national award through the Carrick Institute for Learning & Teaching in Higher Education.

10.2.3 On-campus coursework

Since postgraduate study is usually research (and thus supervised) or for professional development (and thus probably best offered on-line or as supervised programs in the clinic), few postgraduate students undertake coursework programs in a traditional on-campus manner. Those students who do coursework programs often study with honours-level students in the Bachelor of Animal and Veterinary Biosciences.

On-campus coursework is more often undertaken by international students studying in Australia on a student visa. The requirements of the visa include that study must be full-time and no more than 25% of the program may be online. These needs are directly opposite to the needs of most local postgraduate coursework students, making it difficult to cater for both. Some of these difficulties are overcome by partnering with programs in other Faculties, such as the School of Public Health (Medicine), the School of Biological Sciences (Science) and the Faculty of Agriculture, Food and Natural Resources.

Comment on the number of post graduate diplomas/titles awarded annually.

Table 10.2.4.1 Graduations in the past 5 years

	2002	2003	2004	2005	2006
PhD	42	50	58	64	74
Masters	22	21	20	16	13
Coursework	9	28	34	48	56

Table 10.2.4.2 Percentage PhD graduates with veterinary degree

	2002	2003	2004	2005	2006
PhD	6/42 (14.28%)	7/50 (14.0%)	13/58 (22.4%)	12/64 (18.75%)	12/74 (16.21%)

10.3 Suggestions

Postgraduate research and coursework has been highly responsive to student feedback, to industry needs and has been flexible, while maintaining academic rigor. The Faculty should continue this responsive approach, while also consolidating its current offerings and considering the areas of likely sustained student demand.

10.4 Continuing Education Courses held at the Faculty

See **Tables 10.4** and **10.5** in the Appendices of this Standard.

Indicate the involvement of teaching staff in the Faculty involved in continuing education organised by outside organisations.

The PGF is the major continuing education provider with which members of Faculty of Faculty are involved. Their participation is discussed further under Section 10.6.

10.5 Distance Learning

If the establishment is involved in provided distance learning, please indicate the nature and volume of this work.

For the courses offered using distance education please refer to **Table 10.5** in the Appendices of this Standard. For further information see 10.2.2.

10.6 Comments on Continuing Education

Comment on the quality of the continuing education programmes in which the Faculty is involved.

Comment on the degree of participation in the Continuing Education programs in which the Faculty is involved.

The PGF offers high-quality and thorough distance education units, authored by qualified experts in each discipline in consultation with an educational design consultant. A range of teaching tools are used, including e-learning tools, that best suit the particular needs of the discipline, the instructor and the students.

The Postgraduate Coursework Sub-committee of the Faculty of Veterinary Science Learning & Teaching committee is currently working with the Post Graduate Foundation to credit Distance Education courses to the Master of Veterinary Studies.

In addition, a number of members of Faculty are involved with teaching the PGF courses as either moderators/tutors for their Distance Education Courses or as lecturers in the Time Out program. In addition, Faculty members are frequently asked to participate in Conferences organised by the PGF.

10.7 Suggestions in relation to Continuing Education

Provide information on future plans for continuing education.

Indicate ways in which the continuing education program could be strengthened.

The PGF offers outstanding continuing education as its core business, based on consultation with the profession and with the support and involvement of Faculty staff. The small amount of continuing education offered by the Faculty are for specific purposes that may also be useful for participants outside of formal education: for example, the Biostatistics refresher course is designed for students starting postgraduate study requiring statistics, but is in high demand by many others as well. The partnership with the PGF is one of increasing importance, and we are keen to provide pathways between continuing and formal modes of post-graduate education.

Appendices Postgraduate Training and Continuing Education (Standard 10)

Table 10.1 Postgraduate clinical training courses

Clinical Discipline	Duration	Number enrolled FT	Number enrolled PT	Diploma or title anticipated
MVetStud articulated degree -Small Animal Clinical Studies (UVCS)	1 – 3 years	0	6	GradDipVetStud
Small Animal Medicine (UVCS)	1 – 2 years	1	0	DipECVIM(Medicine)
Feline Medicine (UVCS)	3 years	2	0	FACVSc
Surgery (UVCS)	3 years	2	0	FACVSc
Small Animals (UVCC)	1 – 2 years	2	0	Nil
Equine (UVCC)	1 – 2 years	4	0	Nil
Equine Surgery (UVCC)	3 years	1	0	Diplomate ECVS
Dermatology (UVCC/UVCS)	3 years	1	0	FACVSc
Anaesthesia (UVCC)	3 years	1	0	FACVSc
Small Animal Medicine (UVCC)	3 years	1	0	FACVSc
Ruminants (UVCC)	3 years	2	0	PhD
Ruminants (UVCC)	3 years	1	0	MVetClinStud

Table 10.2 Taught postgraduate courses

Course	Duration		Number enrolled	
(a) Diploma Level	FT (yrs)	PT (yrs)	FT	PT
Veterinary Public Health	N/A	2-3	N/A	0
Veterinary Public Health Management	N/A	2-3	N/A	20
Animal Science	-	-		
(Animal Genetics)	1	2-3	0	0
(Animal Reproduction)	1	2-3	0	0
(Animal Nutrition)	1	2-3	0	0
(Animal Breeding Management)	N/A	2-3	N/A	
Veterinary Studies	1	2-3	0	0
(Small Animal Clinical Studies)	N/A	2-3	N/A	5
(Equine Medicine & Surgery)	N/A	2-3	0	0
(Veterinary Diagnostic Pathology)	1	2-3	0	0
(Ruminant Medicine & Surgery)	N/A	2-3	0	0
(Production Animals)	N/A	2-3	0	0
(b) Masters Level				
Veterinary Public Health	N/A	2-4	N/A	3
Veterinary Public Health Management	N/A	2-4	N/A	35
Animal Science	1	2-4		
(Animal Genetics)	1	2-4	1	0
(Animal Reproduction)	1	2-4	0	1
(Animal Nutrition)	1	2-4	0	0
(Animal Breeding Management)	N/A	2-4	N/A	5
Veterinary Studies	1	2-4	0	1
(Small Animal Clinical Studies)	N/A	2-4	N/A	6
(Equine Medicine & Surgery)	N/A	2-4	0	0
(Veterinary Diagnostic Pathology)	1	2-4	0	0
(Ruminant Medicine & Surgery)	N/A	2-4	0	0
Wildlife Health & Population Management	1	2-4	20*	9*

* 29 students are taught by the Faculty of Veterinary Science in the Wildlife Health & Population Management program in 2007, which is administered by the Faculty of Science. This is an estimate of the students that are full-time and part-time.

10.1.3 Postgraduate Research Programmes

Table 10.3 Postgraduate Research Training Programs

(a) Masters Level	Duration FT	Duration PT	Number Enrolled FT	Number Enrolled PT
(*discipline*)	2 – 3 years	4 – 8 years		
Aquaculture	"	"		
Avian	"	"		
Companion Animals	"	"	1	
Companion Animals/Behavior	"	"		
Companion Animals/Genetics	"	"		
Companion Animals/Immunology	"	"		
Epidemiology	"	"		
Invasive Animals	"	"		
Production Animals	"	"	4	3
Production Animals/Epidemiology	"	"		
Production Animals/Genetics	"	"	1	
Production Animals/Immunology	"	"		1
Production Animals/Photobiology	"	"		
Veterinarian Health	"	"		
Wildlife	"	"		1
Wildlife/Genetics	"	"		
Zoo Medicine	"	"		

(b) PhD Level	Duration FT	Duration PT	Number Enrolled FT	Number Enrolled PT
(*discipline*)	3 -4 years	4 – 8 years		
Aquaculture	"	"	2	
Avian	"	"		1
Companion Animals	"	"	9	6
Companion Animals/Behaviour	"	"	1	
Companion Animals/Genetics	"	"	1	
Companion Animals/Immunology	"	"	1	
Epidemiology	"	"	4	
Invasive Animals	"	"	1	1
Production Animals	"	"	26	6
Production Animals/Epidemiology	"	"	1	
Production Animals/Genetics	"	"	11	
Production Animals/Immunology	"	"		
Production Animals/Photobiology	"	"	1	
Veterinarian Health	"	"	1	
Wildlife	"	"	8	
Wildlife/Genetics	"	"	3	
Zoo Medicine	"	"	1	

(c) Other Doctoral Level	Duration	Number Enrolled FT	Number Enrolled PT
(*discipline*)	1 semester		
Production Animals/Pathology			1

Table 10.4 Courses organised by the establishment itself in 2007

Title of course	Participants	Hours
Biostatistics Refresher Course	17	24
Online Teaching Tutorial	10	8
Semen assessment techniques for vet practitioners and technicians in the artificial breeding industries	20	8

In addition, units of study from courses are available for continuing education purposes. From 2003 - 2006, 10 students completed units of study under this scheme.

Table 10.5 Courses organised at the establishment by outside bodies in the most recent year (state year)

The PGF coordinates continuing education for veterinarians in a wide range of disciplines through: Distance Education, Time Out Online courses, 5-day refresher courses, symposia and workshops and a variety of publications.

Title of course	Number of participants	Total number of hrs of course	USyd Academic Staff Involvement
Distance Education - 2007			
Internal Medicine: Keys to Understanding	19	400	
Dermatology	16	400	
Diagnostic Imaging	18	400	
Ruminant Nutrition	8	400	
Avian Medicine	5	400	
Surgery	30	400	
Feline Medicine	20	400	
Behavioural Medicine	15	400	
Emergency Medicine	24	400	
Equine Dentistry	2	400	
Equine Medicine	15	400	
Equine Surgery	10	400	
Cardiorespiratory Medicine	16	400	
Internal Medicine: A Problem Solving Approach	20	400	
Medical Oncology	9	400	
Ophthalmology	15	400	
Sonology	24	400	1
Time Out Online – 2007			
Wildlife	69	10	
Arthritis	112	10	
Workshop/symposia/Major courses – 2007			
Canine Medicine	84	12	
Trauma Management	19	12	
Clinical Dermatology	11	4	2
Echocardiology	18	12	
Ultrasonography	18	12	
Feline Medicine	12	6	
Advances in Small Animal Soft Tissue Surgery	190	30	2
Practice Management	11	12	
Behavioural medicine	5	6	
Medicine and Surgery	25	6	
Feline – Sydney	40	6	
Feline – Melbourne	35	6	1

Chapter 11 Research (Standard 11)

Overview

The Faculty of Veterinary Science has a strong national and international profile for research in a variety of basic and clinical scientific disciplines. More than 95% of teaching staff are research active. Faculty staff are engaged in the full range of research activities including postgraduate training, national and international editorial boards, national examination boards, and scientific advisory boards. Many of our senior academics are internationally recognized and receive invitations to deliver plenary lectures and seminars worldwide and staff and postgraduate students have been honoured by a variety of research awards in recent times.

Research strengths in the Faculty are concentrated in the areas of production animal research (especially pigs, poultry, cattle and sheep), immunopathology, reproduction and genetics, companion animal medicine and behaviour, wildlife conservation biology and performance research in horses. Research is funded by grants from the major competitive funding sources include the Australian Research Council (ARC), The National Health and Medical Research Council (NHMRC), Meat & Livestock Australia, Australian Pork Ltd, Rural Industries Research and Development Corporation (RIRDC), Commonwealth Department of Foreign Affairs, Dairy Research and Development Corporation (DRDC), and the New South Wales Racing Research Fund Industry. Industry collaborations have developed rapidly of late, either through contract research through companies such as Novogen, or through involvement of Faculty staff in ARC-LINKAGE projects with industry partners as diverse as Pfizer Pty Ltd, XY Inc (USA), and various artificial breeding companies. Further, involvement with Cooperative Research Centres has expanded research networks with commercial concerns, other Universities and state and national research organisations. Faculty has two active Research Foundations (Poultry and Dairy) that provide direct industry funding. Staff also have involvement in Australian Centre for International Agricultural Research (ACIAR) and AusAID's Collaboration for Agriculture and Rural Development (CARD) international research and training projects in, for example, China, Indonesia, Bhutan, Vietnam and the Philippines, where staff take a leading role in improving health and production of livestock as well as in training local scientists.

External research income has trebled in 5 years which, supplemented by internal funds, provides increasing infrastructure and resources for research and hence greater opportunities for undergraduate and postgraduate student research training. With both city and rural campuses the Faculty is well–placed to provide the infrastructure required to pursue research in a range of species from basic cell and molecular biology to individual animal research models, and to the broader issues of herd and flock health management, animal behaviour and the constraints on animal health and production imposed by commercial management systems. Research projects involve >25 species, ranging from koalas and Tasmanian devils to reptiles and rhinoceroses. Undergraduates have opportunities to be exposed to, or involved in, research projects throughout the BVSc curriculum, and may also undertake the special 1-year research-based BSc(Vet) program.

11.1 Factual Information

Indicate the involvement of undergraduate students in research, include the time spent, percentage of students involved and the outcome required.

Every effort is made to match teaching responsibilities to the research interests of staff. This enables staff to integrate recent developments in research into teaching, not only to inform, but also to inspire curiosity and interest in research. For example, research developments in emerging fields of genomics and biotechnology are incorporated into Cell Biology, Genetics and Animal Biotechnology units of study. Students in these Units learn through critical review of the most recent literature and through direct contact with researchers active in these fields. Similarly, the teaching of small animal medicine and surgery is informed by current research and helps to position our graduates at the leading edge, so they are well-placed for

employment or postgraduate research. Indeed, staff participation in contract and other research involving clinical skills provides a growing source of material for undergraduate clinical training.

Since most teaching staff are active researchers, students are naturally exposed to the latest technology in lectures and practicals. Research-only staff are also encouraged to become involved in teaching programs in their area of specialty. Faculty staff have incorporated an experimental approach into laboratory classes, with analysis of research samples such as DNA fingerprinting in Cell Biology classes and experiments to conserve mammalian semen in Anatomy and Physiology. Undergraduates are also involved in collection of cutting edge research data, such as autopsy of cadavers in ovine Johne's Disease research (Ruminant Health & Production) and literature searches for known inherited diseases of domestic animals (Animal Husbandry 1A).

In Year 5, all students have the opportunity to participate in research projects, and all avail themselves of the opportunity to a greater or lesser degree, particularly those who nominate for the **Honours Program**. For example, within the compulsory unit of study, Rural Public Practice, all interns have exposure to research projects, data collection and analysis etc, and one of these projects recently led to initiation of a major industry funded research project. Furthermore, the Year 5 Elective units of study allow interns to choose projects in their area of interest as an obligatory component of an Honours degree. Interns have up to 2 Elective Rotations, of 4 weeks duration, during which they can conduct research projects of their choosing. More information regarding the new Honours program is available upon request during the site visit.

The **BSc(Vet) program** is popular, with 8–10 students per year participating. This degree is a unique program to engage veterinary students in research, when students take one year out of their professional program studies to undertake research training. The degree program involves a substantial research project of the student's choice from a range offered by Faculty, and leads to production of a thesis and, frequently, other publications. Students also present seminars as part of the requirements. These students are treated as postgraduate research students and often progress to undertake a PhD degree after a period in veterinary practice. Research is commonly supported by outside research grants, but Faculty also provides $2,000 towards each project.

Between one and five students per year undertake research programs at overseas universities as part of exchange or leadership programs such as the Cornell Leadership Program. Since 1992, students from 4th and 5th year have been encouraged to apply for positions in the Cornell Leadership Program (now only available in Year 5 rotations). Applications are judged on the basis of academic record, referees' reports and a submission from the student outlining their reasons for interest in the program and their commitment to a career path involving research or other activities that will lead to advancement of their own skills as well as the veterinary profession. The Faculty has been extremely successful, with 53 students accepted into the Leadership Program in the last 16 years. This exceeds acceptances from any other foreign school and compares favourably with North American schools. This program runs for 10 week in the North American summer and several students have subsequently undertaken further research, including PhDs, and others have enrolled in Residency programs.

11.2 Comments

Comment on the opportunities for students to participate in active research work.

The Faculty of Veterinary Science is committed to research in a variety of preclinical, paraclinical and clinical disciplines and recognizes the impact of high calibre research on the professional teaching program. In addition to high quality teaching and learning practices, the Faculty recognises that students also need exposure to scientists that are specialists and at the cutting edge of research in their field. As a result, the Faculty has placed particular strategic emphasis on research as a means of providing academic depth and support to the professional curriculum. The Faculty is fortunate to have a number of discipline experts who are recognised leaders in research in fields including applied reproduction, veterinary genetics, immunology, equine exercise physiology, parasitology, feline medicine and small

animal surgery.

11.3 Suggestions

Will students be given more opportunity to participate in research activities? If so, how will this be done?

The staffing profile of the Faculty is constantly reviewed and the Research Advisory Committee has involvement in all new academic appointments. In recent times new industry co-funded chairs have been established to address areas of strategic research and training significance (Farm Animal Health; Poultry; Dairy; Veterinary Public Health and Food Safety), and associated research projects provide additional opportunities for involvement of undergraduates. The development of the BAnVetBioSc degree in Faculty has also led to new appointments who also teach in the BVSc program, and the new positions have expanded our skills base in genomics, bioinformatics, wildlife medicine and marine biology. Three further new appointments are to be made in emerging areas yet to be finalised. Additional lectureships in emerging areas of research strength have been sought through the University's Sesqui ('new blood') lectureship scheme, where new lectureships in Epidemiology, Genomics, Reproductive Biotechnology, Aquaculture and Bioinformatics/Computational Biology have recently been added to the Faculty profile.

The University of Sydney, and the Faculty of Veterinary Science in particular, is committed to a culture of Research-led teaching. In June 2004 and November 2006 staff participated in Faculty Research-led Teaching Days, which showcased examples of research-led teaching, and ideas for future development were discussed in a workshop. More of these workshops are planned, and staff are actively encouraged to include elements of their research in teaching and involve students in research as much as possible. Further opportunities are being explored.

The Faculty has also committed to provision of a research experience for all veterinary students entering the Honours program. This is in keeping with a recent review of Honours degrees within the University and the determination within the new policy:

1. that the Honours degree at the University of Sydney, which is a research-intensive university, contains a significant, identifiable, quantifiable research component; and
2. that the standard of Honours entry and final grades are documented, consistent and equitable across all degree programs.

This change in policy to the Honours degree will be implemented in 2008.

With the recent success of Faculty's research programs has come laboratory refurbishment and an influx of modern equipment, in addition to the recent development of new clinical facilities with research capability. Faculty is providing for further expansion through the Camden Redevelopment Plan, which involves an integrated approach to developing modern, flexible infrastructure to support current and future research and teaching needs of the Faculty and its collaborators. Faculty is well-placed to move into new research opportunities in Biosecurity and Emerging Diseases, Aquaculture, Bioinformatics and Genomics, particularly through the government and industry-funded Cooperative Research Centres (Faculty has major involvement in several CRC's, namely Pork Industry, Australian Invasive Animals, Dairy, Poultry, Sheep and Biosecurity CRCs). New equipment is funded through by industry grants, often in concert with the central University administration. Recently acquired equipment includes automated gene sequencers, real-time thermal cycler, an automated immunostainer and a computer assisted semen analyzer. The developing research infrastructure will provide increasing opportunities for students to be involved in cutting-edge research.

Chapter 12 Outcomes Assessment (Standard 12)

12.1 Factual Information

Indicate the methods used to assess outcomes from the veterinary program.

The outcomes are assessed during undergraduate study and after graduation, through analysis and reflection on quantitative and qualitative data gathered from students, employers, University and Faculty staff. A range of validated survey instruments are used as well as targeted surveys, focus groups and interviews. The data is used by the Learning and Teaching Committee to identify areas which require action. The results are regularly reported to Faculty Executive and Faculty meetings, and used to inform development of Faculty strategic priorities for curriculum change, staff development and quality enhancement initiatives and to evaluate progress towards these goals.

Students Educational Outcomes

12.1.1 Student Attrition

Table 12.1 2006 Student Attrition Rates

Relative Class	Attrition[1]	Reason for Relative Attrition		Absolute Attrition[2]
		% Academic	% Personal	
Year 1	9/127 (7.08%)	3 (33.3%)	6 (66.6%)	7/127 (5.51%)
Year 2	5/122 (4.09%)	1 (20%)	4 (80%)	1/122 (0.81%)
Year 3	4/116 (3.44%)	2 (50%	2 (50%)	0/116 (0%)
Year 4	6/113 (5.30%)	5 (83.3%)	1 (16.6%)	1/113 (0.88%)
Year 5	0/98 (0%)	0 (0%)	0 (0%)	0/98 (0%)

[1] Students either withdrawing from the program or moving to an earlier class
[2] Students who leave and never return

Table 12.2 Attrition rates for student body 2000-2006

Year	Attrition[1]	Reason for Relative Attrition		Absolute Attrition[2]
		% Academic	% Personal	
2000	16/505 (3.2%)	5 (31.3%)	11 (68.8 %)	6/505 (1.2 %)
2001	20/535 (3.7%)	5 (25 %)	15 (75 %)	7/535 (1.3 %)
2002	17/562(3.0%)	11(64.7%)	6 (35.3 %)	6/562 (1.1 %)
2003	15/579 (2.6%)	8 (53.3 %)	7 (46.7 %)	11/579 (1.9 %)
2004	17/587 (2.9%)	10 (58.8 %)	7 (41.2 %)	10/587 (1.7 %)
2005	22/573 (3.8%)	12 (54.5%)	13 (59%)	15/573 (2.6%)
2006	24/576 (4.1%)	11 (45.8%)	13 (54.1%)	9/576 (1.5%)

Attrition rates are highest in Years 1 and 2 of the BVSc ***(Table 12.1)*** and have remained stable for more than 5 years ***(Table 12.2)***. The main reasons for attrition are health and financial difficulties which impact on academic progress, as the rigorous selection procedures and high motivation mean students are capable and committed to completing the course. Demand for BVSc entry remains high http://www.itl.usyd.edu.au/eqa/tpi_cst.pdf (UAI>98). Retention rates are the highest in the University, and student progress rates (98-100%) remain high, with a slightly lower rate for international students (94-98%) similar to other Australian veterinary schools http://www.itl.usyd.edu.au/eqa/tpi_cst.pdf. A range of academic, personal, social, disability and health support is provided to help students succeed, with early identification and interviews of "students at risk" of poor performance *(Section 7.2)*.

12.1.2 Employment rates of graduates within 1 year of graduation

The University's Institute for Teaching and Learning (ITL) provides data on a Graduate Destination Survey annually of the previous years' graduates *http://www.itl.usyd.edu.au/CEQ/faq.htm*. This forms part of a national study of graduate employment at 30th April http://www.gradlink.edu.au/content/view/full/24. The 2006 report on 2005 Faculty graduates is at http://www.careers.usyd.edu.au/students/careeropt/degree.shtml with an explanation of the methods used in analysis at http://www.itl.usyd.edu.au/eqa/tpi_intro.pdf. BVSc graduates have very high rates of employment compared to other graduates of University of Sydney and Australian universities and high rates of progression to postgraduate research.

Table 12.3 Percentage of Undergraduate Graduates in Full-time Work and Study 2002-2006

Graduate Destination Survey	2002	2003	2004	2005	2006
% of respondents in Full-Time Work	100%	100%	96%	89%	90%
% of respondents in Full-Time Study	11%	13%	14%	12%	16%
N=	38	32	49	42	52

From http://www.itl.usyd.edu.au/eqa/fulltimework_u.htm

Table 12.4 Employment destinations for 2005 BVSc graduates

Professional Practice	**71%**
Other Full Time Study	**7%**
Other Employment or Not Indicated	**5%**
Unavailable for Full Time Work or Study	**4%**
Other Degree/Diploma	**4%**
Industry/Commerce	**8%**
Higher Education	**4%**
Non-Profit	**4%**
Not Working and seeking Full Time	**4%**

12.1.3 Student evaluation

Student Course Experience Questionnaire- Years 1- 4 SCEQ

Since 2000 (and continuing biannually), the University's ITL has collected data in October on students' perceptions of their teaching and learning experiences using a survey specifically developed for this task, the Student Course Experience Questionnaire (SCEQ) *(also described in Standard 7 Curriculum; Section 7.8.4)*. The SCEQ provides the University community with a basis for strategic, faculty level academic development and curriculum

review to further enhance the quality of teaching and student learning. The survey gathers data on students' perceptions of the quality of teaching and student learning in their degree courses as well as their perceptions of the administration and student support services. The ITL analyses this data and provides a range of reports to staff and students of the University through this web site. Deans are accountable for Faculty performance on SCEQ and CEQ http://www.itl.usyd.edu.au/SCEQ/secure/RRR.cfm

Students are members of all Faculty **L&T Subcommittees** and **Student Staff liaison Committee**, as well as targeted focus groups. This provides the Faculty with early feedback on issues of concern to students. Data from all these sources from each year of BVSc enrolment is analysed in detail by Faculty L&TC subcommittees, using quantitative and qualitative methods. It is used by the BVSc Subcommittee and Year groups to monitor progress and plan strategic improvements in curriculum and teaching practices, and is presented to Faculty and students. It has been demonstrated that there is clear alignment between aggregated unit of study evaluation (USE) data, SCEQ (by year of enrolment) and ultimately CEQ, so the relationships between these and identification of trends over time are of particular importance. Students and staff receive feedback ("closing the loop") on all evaluations that are conducted and are informed of changes that will be made.

Substantial and significant improvements are present in the good teaching, appropriate assessment, generic skills and overall satisfaction scales for undergraduates over the past 7 years *(**Table 12.5**)*

Table 12.5 Undergraduate Student Course Experience Questionnaire data

Undergraduate SCEQ (% agreement) Year	00	01	02	03	05
Good Teaching Scale	44	41	50	55	54§
Clear Goals and Standards	48	44	41	50	46§
Appropriate Assessment	33	33	41	42	46
Appropriate Workload	17	17	13	13	16
Generic Skills	62	60	61	66	67§
Learning Community	-	61	61	63	63§
Overall Satisfaction	74	79	78	80	85*

* = highest of any Faculty in the University
§ = second highest of any Faculty

Student Course Experience Questionnaire - 5th year SCEQ

In recent years we have focused on Year 5 SCEQ data in order to assess the impact of the new curriculum and transition to practice. Notable trends in Year 5 SCEQ are; decline in student satisfaction during phase-out of old curriculum with improved perceptions of learning experience since trial (2003) and full (2005) introduction of the new curriculum final year placements and assessment *(**Table 12.6**)*.

Table 12.6 SCEQ Year 5 students' evaluation of final year experience

5th Year Cohort	2000*	2001	2002	2003	2005 FVS	*2005 USyd*
Good Teaching	55	39	35	49	48	42
Clear Goals	57	45	32	56	53	40
Appropriate Assessment	40	19	22	43	46	53
Appropriate Workload	26	22	11	17	19	23
Generic Skills	77	69	59	76	85	64
Learning Community	N/A	57	54	60	65	55
Overall Satisfaction	74	70	58	78	85	69

*% of 5th year students who strongly agreed or agreed
Surveys conducted every second year from 2003

Evaluation of Year 5 units of study (rotations)
Feedback from students shows overwhelmingly positive feedback. The University's Institute for Teaching and Learning conducted USEs (quantitative scores and qualitative questions

based on the CEQ scales) on all Year 5 units of study in 2006. All achieved overall means from 4.34 to 4.57 out of 5. Almost all students agreed or strongly agreed with questions on the quality of their learning experience *(full data available upon request during site visit)*.

Final Year Student Focus Groups and Surveys
Since 2004 final year students have participated in a range of faculty-designed surveys, interviews, focus groups to gather feedback on their perceptions and experiences. During the first two years intensive interviews and focus groups were undertaken to identify issues early and enable them to be remedied, resulting in many changes, particularly to the intramural rotations, their teaching and assessment. A range of survey instruments have been developed, tested and refined for use during and at the end of year 5, which complement the University's SCEQ and USE *(selected data in Appendices for this Standard)*.

Year 5 Student Exit Survey
Final year students complete an anonymous on-line exit survey after the completion of all rotations. It has been conducted each year since introduction of the new curriculum. The results from 2006 are presented in the appendices and previous data is available on request.

Students report the new curriculum provides an excellent and sustainable learning experience, and considered the rotations enabled them to achieve their learning outcomes and equipped them well for a confident start to their professional practice. However, many students have difficulties with finances, transport, computer access, living away from home, social isolation and other personal stresses during the final year rotations, which are exacerbated by frequent changes in location. These issues are currently being addressed by the Faculty.

12.1.4 Evaluation of the year 5 clinical program by extramural and intramural supervisors and staff

A range of feedback is collected from final year supervisors of extramural and intramural placements, as well as from staff assisting with management of the program. Quantitative and qualitative data is gathered, analysed and reported, including:

- overview of students levels of achievement on each of the graduate attributes to determine strengths and weaknesses of the curriculum as a whole,
- identification of any common areas of weakness in students preparedness for clinical practice, in their knowledge, skills and abilities, which need to be remedied through curriculum change in year 5 or earlier years of the BVSc (summary of students achievement of outcomes in 2006 in *Appendices for this Standard*),
- information on students capability, motivation and approaches to self directed learning in professional practice settings (gathered through comments on Supervisor Report Forms and also in workshops at the Partners in Veterinary Education conference),
- feedback on the structure, management, assessment and support for the year 5 program, gathered through individual comments, focus groups and surveys of practitioners (*data presented in Appendices for this Standard*),
- feedback on perceptions of the relevance and suitability of the BVSc as a preparation for practice from current members of the profession. This is gathered through feedback on the graduate attributes, learning outcomes and standards of achievement required (gathered informally through comment and through surveys and focus group discussions at the annual conference),
- information on "students at risk" of failure and those who are not likely to be "practice-ready" by graduation. This is gathered to better improve methods for identification, remediation and support of these students (gathered by detailed analysis of individual cases of difficulty),
- suggestions for improvements to make the program more robust, sustainable, effective, rewarding and successful for all participants (through surveys of practitioners perceptions of the final year program).

12.1.5 Surveys of Alumni - Course Experience Questionnaire (CEQ)

The CEQ is administered to all new graduates during their first year after graduation. This comprises 49 structured questions forming the following scales: good teaching, clear goals and standards, appropriate workload, appropriate assessment, generic skills, learning community, overall satisfaction *(Table 12.7)*. Detailed CEQ results for the BVSc are at http://www.itl.usyd.edu.au/CEQ/reports.cfm show improvement in all scales (old curriculum) and comparisons to other courses http://www.itl.usyd.edu.au/EQA/tpi_scale.htm. National results are available on *http://www.gradlink.edu.au/content/search* .

Table 12.7 Summary of BVSc CEQ trends 2000-2006 Surveys of Graduates (of previous year)

	2000	2001	2002	2003	2004	2005	2006
Good Teaching	33	33	47	43	47	49	59
Generic Skills	57	63	70	64	68	67	80
Overall Satisfaction	70	67	80	74	75	61	79

% = percentage agreement and strong agreement, cohort of >50% of graduates

The CEQ is a trailing indicator of students' experience of learning and is used by Faculty to identify areas of persistent concern to graduates. The ITL analysis reported a *"substantial, significant improvement between 2000 and 2006 in students' perceptions of the extent to which their degree course developed Generic Skills, Good Teaching and a trend to improved Overall Satisfaction."*

The University provides a qualitative analysis of the open comments, and the Faculty LTC and BVSc Subcommittee undertake their own review of the feedback. This provides directions and impetus to the curriculum change, and has led to a range of initiatives in curriculum, generic skills development, assessment and attention to concerns about the stresses involved in the year 5 rotations. An e.g. comment: *Some exceptionally good teaching staff, both in terms of experience in their field, but also in commitment to education of students" (CEQ, 2006 Graduate)*

CEQ and SCEQ trends are analyzed by the ITL, reported to the University, and contribute to the key Teaching Performance Indicators used by the University in allocation of performance based funding since 2002 ***(Table 12.8)***, full details at http://www.itl.usyd.edu.au/EQA/funding.pdf. Faculty has demonstrated sustained, significant increases in performances on these indicators.

Table 12.8 Teaching Performance Indicators 2002-2006

Faculty of Veterinary Science	2002	2003	2004	2005	2006
Good Teaching Scale, % Agreement					
The staff put a lot of time into commenting on my work	29%	24%	30%	33%	60%
The teaching staff normally gave me helpful feedback on how I was going	43%	31%	53%	31%	69%
The teaching staff of this course motivated me to do my best work	69%	55%	53%	43%	67%
My lecturers were extremely good at explaining things	63%	57%	53%	55%	62%
The teaching staff worked hard to make their subjects interesting	46%	54%	64%	67%	77%
The staff made a real effort to understand difficulties I might be having with my work	31%	34%	43%	26%	41%
Good Teaching Scale Score	**47%**	**42%**	**49%**	**42%**	**63%**
Generic Skills Scale, % Agreement					
The course helped me develop my ability to work as a team member	75%	66%	68%	50%	79%
The course sharpened my analytic skills	83%	86%	87%	76%	83%
The course developed my problem-solving skills	81%	83%	87%	79%	87%
The course improved my skills in written communication	42%	38%	43%	44%	75%
As a result of my course, I feel confident about tackling unfamiliar problems	72%	64%	72%	60%	79%
My course helped me to develop the ability to plan my own work	61%	59%	81%	57%	79%
Generic Skills Scale Score	**69%**	**66%**	**73%**	**61%**	**80%**
Overall Satisfaction Item, % Agreement					
Overall, I was satisfied with the quality of this course	80%	83%	83%	64%	83%

***Significant changes in:*
GTS t(76) = 3.34, p = .001, d = 0.77
GSS t(76) = 3.99, p < .001, d = 0.92 (Paul Ginns, ITL)

12.6 Curriculum Evaluation- by Faculty staff, students, University and the Profession

Development, revision and evaluation of Graduate Attributes

The Faculty aims to develop outstanding veterinarians who are independent, creative thinkers and possess the attributes required for confident, entry-level professional practice. These **Graduate Attributes** *(**Table 7.8** located in the Appendices for Standard 7)* encompass both generic, and discipline-specific, knowledge, skills and attitudes required for veterinarians to be effective and successful in an evolving global society. These were developed in consultation with the profession, University, staff and students with the Faculty hosting an Australasian workshop in 2002 which led to development of agreed Australasian attributes for veterinarians (Collins and Taylor, JVME 2002).

The Faculty was a founding member and ongoing leader in the **University's Graduate Attributes project** (2003-7). During this project, as members of the **University's Graduate Attributes Working Group,** Faculty assisted in development of the University's own statement of Graduate Attributes. Our Graduate Attributes were substantially revised to align within the new University framework (http://www.itl.usyd.edu.au/GraduateAttributes/interpretations.cfm). During this revision Faculty undertook consultation with stakeholders, overview/mapping across the curriculum ***(Table 12.9)*** and developed exemplars of good practice which are available on the institution's project website (see http://www.itl.usyd.edu.au/GraduateAttributes/curricula.htm).

Table 12.9 Mapping of Graduate Attributes years 1-4 (overview)

Veterinary Science

Year of study		Research and Inquiry	Information Literacy	Personal and Intellectual Autonomy	Ethical, Social and Professional Understanding	Communication
4th year	9 UoS	2 : 6 1 : 3 0 : 0 av :1.67	2 : 4 1 : 4 0 : 1 av :1.33	2 : 4 1 : 4 0 : 1 av :1.33	2 : 9 1 : 0 0 : 0 av :2.00	2 : 3 1 : 5 0 : 1 av :1.22
3rd year	10 UoS	2 : 8 1 : 1 0 : 1 av :1.70	2 : 8 1 : 2 0 : 0 av :1.80	2 : 7 1 : 3 0 : 0 av :1.70	2 : 5 1 : 4 0 : 1 av :1.40	2 : 9 1 : 1 0 : 0 av :1.90
2nd year	6 UoS	2 : 1 1 : 4 0 : 1 av :1.00	2 : 2 1 : 3 0 : 1 av :1.17	2 : 3 1 : 2 0 : 1 av :1.33	2 : 2 1 : 2 0 : 2 av :1.00	2 : 3 1 : 2 0 : 1 av :1.33
1st year	7 UoS	2 : 3 1 : 1 0 : 3 av :1.00	2 : 6 1 : 1 0 : 0 av :1.86	2 : 4 1 : 3 0 : 0 av :1.57	2 : 2 1 : 3 0 : 2 av :1.00	2 : 3 1 : 4 0 : 0 av :1.43
all	32 UoS	2 : 18 1 : 9 0 : 5 av :1.41	2 : 20 1 : 10 0 : 2 av :1.56	2 : 18 1 : 12 0 : 2 av :1.50	2 : 18 1 : 9 0 : 5 av :1.41	2 : 18 1 : 12 0 : 2 av :1.50

scale: 0='not a focus' 1='minor focus' 2='major focus'

Constructive curriculum alignment using Graduate Attributes

The Veterinary Science curriculum is designed to ensure all **Graduate Attributes** are developed and assessed through increasingly challenging learning activities across the program. Each unit of study has been constructively aligned (Biggs, 2003) to address a range of Graduate Attributes (staff development workshops from 2001-4 developed statements for unit of study outline). Each unit has a series of **Learning Outcomes** which are aligned to the Graduate Attributes that form the basis for teaching, learning and assessment (available in unit outlines and reviewed annually). Students are graded on their achievement of learning outcomes in each unit which use the SOLO taxonomy to identify a hierarchy of achievement for each outcome, defined using **Grade Descriptors** (developed during staff development workshops 2002 - 3).

The development of Graduate Attributes culminates in a **final-year programme** based entirely student-negotiated learning outcomes (in extramural rotations) designed to develop and enable assessment of all the Graduate Attributes in a range of workplace settings. This curriculum design is intended to ensure thorough and consistent achievement of all Graduate Attributes in the full range of veterinary professional workplace settings. In particular students are supported during the development of their own **skills in self-directed learning and assessment in the workplace,** which are crucial for a smooth transition to practice thus reducing the lag period before new graduates are confident to perform as independent, effective veterinary professionals. Research highlighted the crucial role that authentic, student-directed assessment should, but frequently does not, play in developing the habits of self-monitoring and self directed learning for professional success (Boud and Falchikov, 2006).

Assessment of students' achievement of Graduate Attributes by staff, professional partners and students

A range of measures are used to assess the effectiveness and consistency of students' achievement of Graduate Attributes in Years 1 - 4. These are based on students' unit of study assessment results (which demonstrate achievement of specific Learning Outcomes) and contribute to the Weighted Average Mark (WAMs) during Years 1-4 and honours (currently).

Year 5 rotations assessment tools, particularly the **Supervisor Report Form** (SRF) *(see **Fig. 7:** '2007 Supervisor Report Form' in the Appendices in Standard 8*), address all the Graduate Attributes, set within the context of specific workplace settings. The SRF are completed by University clinical staff and extramural Partner Practitioners for each rotation. They assess students' level of achievement of each Graduate Attribute and "Practice Readiness" against descriptive grading criteria designed for each type of veterinary professional practice. Students highly rate the usefulness of these assessment tasks, particularly the supervisor meeting and feedback (based on the SRF), in enabling them to achieve their learning outcomes.

Evaluation of students' conceptions and approaches to clinical learning

The new year 5 clinic-based learning program was introduced to immerse students in authentic professional learning to facilitate their transition to practice, and was intended to stimulate deep, meaningful approaches to learning and conceptual change. The impact of the curriculum on students learning conceptions and approaches has been investigated (2005-7 as part of a PhD study). Through **Student Learning Research methods** (Prosser and Trigwell, 1999), SRF results were found to be strongly associated with the quality of students' conceptions of, and approaches to, clinic-based learning during final year (quantitative survey of 92 students, in depth interviews of 40 students and 25 graduates from 2005 cohort).

Students hold a range of **conceptions** of their clinic based learning. **Fragmented conceptions** focus on *practical skills* in diagnosis and treatment and use of *standard formulae* for treating veterinary problems. **Cohesive conceptions** consider clinic based learning is about *flexible integration of theory, skills, understanding and experience* to enable effective veterinary practice and a *progressive adoption of a personalised understanding.*

These conceptions are strongly statistically related to the **approaches** students take to learning, which may be **superficia**l, namely *gathering and reproducing* discrete veterinary knowledge and techniques and *accumulating and using* case-related veterinary knowledge and generic methods for veterinary case management. Or they may be **deep approaches** which involve *understanding, critically evaluating and learning how to manage* diverse issues related to veterinary cases and *being* a learning veterinarian. These conceptions and approaches are linked to the quality of their learning outcomes, as assessed by the SRF.

In recent research there are strong relationships between **graduates conceptions and approaches** to their professional work and their **conceptions and approaches in year 5.** Future studies will determine the impact these variations have on the transition to practice, longevity and effectiveness of graduates in veterinary practice (detailed report available on request). These will provide vital insights into how best to modify the curriculum to prepare graduates for life long learning in professional practice. (*Unpublished data, Susan Matthews, PhD candidate - not for further distribution).*

Monitoring assessment outcomes of years 1-4

Faculty's Learning and Teaching committee has developed a range of procedures for monitoring the design, timing, weighting, conduct and outcomes of assessment across the curriculum. These have led to substantial reductions in the total assessment load, better distribution of load, and a shift to a wider range of assessment tools in use. These have been reported in recent scholarly publications.

Teaching and learning plans and reports

Faculty produces an annual learning and teaching operational plan to enable implementation of strategic directions. An annual report on progress against the plan is made to the Faculty and University (http://www.usyd.edu.au/learning/planning/faculty_plan.shtml). Staff plan their annual activities based on the Faculty's plans and report on them using the University's Performance Management and Development system, providing a means for aligning individual staff and faculty priorities and rewarding achievements.

External Advisory Board
Faculty's external advisory board *(see Standard 1: Organisation)* provides diverse societal, professional and employer perspectives which inform the Faculty's strategic priorities and operational plans, particularly in curriculum.

Benchmarking in disciplines
Some small benchmarking projects in curriculum and assessment have been undertaken in discipline areas including Pig Health and Production, Veterinary Public Health, Veterinary Physiology and Veterinary Pathology.

12.2 Comments

Comment on the degree to which the assessment methods and feedback have been used to improve the quality of the degree program.

Evidence of impact: Faculty Quality Enhancement
Evaluation and quality enhancement policies and practices have been effective over the past 7 years in helping Faculty to identify areas in need of improvement as well good practice. They are regularly updated to ensure that the key indicators for success of our education programmes are carefully monitored, measured, analysed and reported. The curriculum is under continual review with innovations and improvements made every semester. Feedback is drawn from a wide range of sources, analysed quantitatively and qualitatively using scholarly framework for good teaching practice (based on Biggs, 2003, Ramsden, 2003 and Prosser and Trigwell, 1999). The findings are used to inform the development of coherent strategic and operational plans. The Faculty's Learning and Teaching leadership structure provides for distributed responsibility, effort and contribution as most teaching academics have one or more leadership roles in teaching. Faculty staff have been significant contributors to the University's Evaluation and Quality Assurance Working group which implements Academic Board policy, guiding colleagues in implementation of a range of measures for gathering and analysing evidence, enhancing quality and benchmarking good academic practice (http://www.nettl.usyd.edu.au/eqa/). Faculty's commitment to evidence-based enhancement of quality is recognized by staff, students, the University and the profession *(see table 12.12 'staff survey', student feedback and case studies of good practice)*

Evidence of impact: Outcomes of evaluation of year 5 clinical based learning
Outcomes from the final year program derived from students (interns), educational partners (professional practitioners) and staff have resulted in ongoing changes to earlier years of the curriculum and final year rotations:

Years 1-4:

- Identification of key factors likely to place "Students at risk" of difficulty in Year 5, including weak communication, animal handling skills and poor prior academic performance. This led to increased stringency in progression rules in Years 1 - 4 (no supplementary examinations), inclusion of early assessment, detection and remediation for students with skill deficits.
- Increased focus on development and assessment of animal handling skills through intramural programs (*see also under Standards 5 and 8*).
- Alignment of extramural supervisor report forms for animal husbandry with the final year supervisor report form in non-technical areas (linked to identification of students at risk in Year 5).
- Alignment of extramural SRF in Professional Practice support placements in first and second year with the final year supervisor report form in non-technical areas (linked to identification of students at risk in Year 5).
- Inclusion of extramural assessment of animal handling skills in animal husbandry and professional practice placement supervisor report forms.
- Increased attention to oral and written communication skills in a variety of units of study in first and second year
- Higher English competency standards for entry (international students)
- Changes to professional practice in first year and in fourth year to further assist with the development of generic consulting skills prior to final year

- Changes to assessment in professional practice in first and second year to assist in case study documentation to assist with preparation for the new honours program.
- Increased level of instruction regarding assessment tasks during Year 5 through preparation for veterinary practice in Year 4.

Final year (Year 5) program:

- Changes to the SRF to assist with identifying areas of weakness.
- Greater flexibility for students in choosing when and where placements are completed
- Introduction of an optional 5 day interval (increased from 2 days) between extramural rotations.
- Reduced, more focused assessment tasks for deeper learning during rotations.
- Reduction of Elective Rotations from 3 to 2 which will facilitate the addition of a second rotation through UVCC in 2009.
- Modification of the Elective Program to accommodate more opportunities for research experience in final year and to align with University changes to honours policy.
- Increased benefits for educational partners:
    - greater information and more readily available feedback from students
    - access to lecture material via web and through CD
    - access to intern assignments from RPP placements
    - changes to Camden Library opening hours – continual reassessment of this service.
- Opportunities for elective and core placements continue to increase (from over 300 to around 400).
- Partner Practitioner in Residence Program (UVCS) initiated in 2006.
- Award of Educational Partner of the Year (one for clinical and one for RPP placements created) in order to recognise excellence in extramural supervision.
- Improved access to intern feedback on placement experience for students (including site, accommodation and cost information) prior to selection of placements in Year 4.
- Continuous improvement to web based administration system for students, interns and supervisors with a major re-development to be completed by late 2007.

As a consequence of the changes made, there has been a steady and significant improvement in student evaluation of the learning experience in rotations seen in surveys, SCEQ and CEQ quantitative and qualitative results.

Evidence of impact: External review and recognition of good practice in Faculty learning and teaching

The faculty has been the subject of several recent reviews by international education experts *(full details available upon request during site visit).*

Case study 1: The key findings of a study which Faculty was invited to participate in and which involved 3 days of interviews and assessment of documentary evidence by an international expert of academic leadership were:

"This is one of the most dramatic examples of major change in teaching in any of the cases studied. ...The whole process was underpinned by ongoing programme and course evaluation, and a major emphasis on changing the culture of the faculty and sharing leadership and decision-making. "(International case study led by Oxford University, Professor Chris Knapper, 2006)

Case study 2: Faculty participated in a review of the quality enhancement processes for constructive curriculum alignment by the leading researcher in this field.

"This astonishing success story shows what can be done with the leadership, the will and the commitment to SoTL. The over-riding principle is alignment: every decision made has to conform to the culture established to implement CA. It is highly significant that the University as a whole was also committed to student-centred learning and was able to come up with the support structure needed in terms of staff developers, policies and procedures. (Professor John Biggs, Case study in upcoming edition of his classic textbook Biggs, J. B. and Tang, C. (2007). Teaching for Quality Learning at University: what the student does (3rd ed.). Philadelphia: Open University Press.)

Case study 3: Curriculum, teaching and assessment practices in some Faculty units were reviewed for a classic textbook study on good teaching practice:
Ramsden, P (2003) Learning to teach in higher education. 2nd Ed. Routledge and Farmer, UK

Case study 4: A report on Faculty assessment practice appears on an Australian Assessment Resource online James, R, McInnis, and Devlin, M (2003) Case study on good practice in assessment in Veterinary Neurophysiology. Part of website, Assessing learning in Australian Universities. http://www.cshe.unimelb.edu.au/assessinglearning

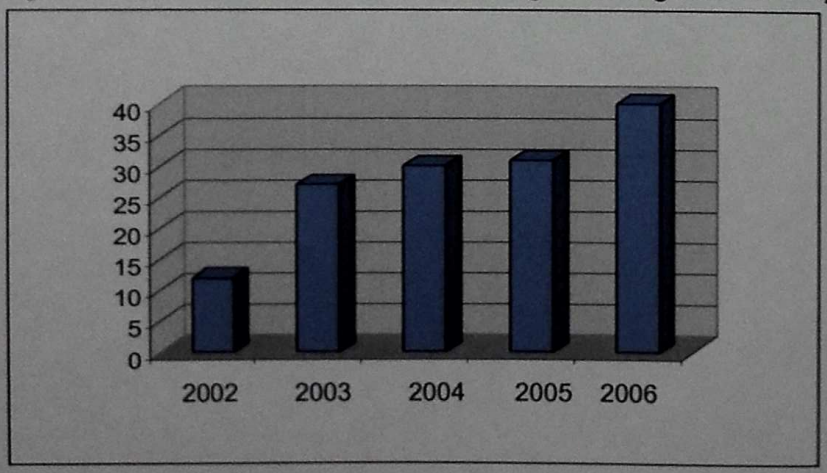
Case study 5: Faculty's quality assurance procedures and use of student evaluation data have also been reported favourably in a study of the University's initiatives: Barrie, S, Ginns, P and Prosser, M P (2005) *Early impact and outcomes of an institutionally aligned, student focused learning perspective on teaching quality and assurance.* Assessment and Evaluation in Higher Education. 30:641-656

External review: Academic Board Review evaluations of Faculty
The Faculty has enjoyed excellent Academic Board reviews in 2001 and 2003 and is due for a further visit in 2008. Reports available at
http://www.usyd.edu.au/quality/about/docs/academic_board_reviews_2001-2004_report.pdf.
Changes were made to postgraduate coursework and research degree training as a result of the Board's recommendations, with a major review in 2005 of postgraduate coursework degrees and development of new programs. This has resulted in substantial and sustained improvements in student evaluations on the Postgraduate Research and Postgraduate Coursework Experience Questionnaires (available on ITL website) or request http://www.nettl.usyd.edu.au/SREQ/

Impact of staff development in teaching and learning
In 2001 Faculty adopted the goal of developing a *"A shared **culture** of excellence and scholarship in teaching and learning"*. A range of staff development initiatives have been implemented, along with policies and procedures that support the process of ongoing collection of evidence, reflection and action on learning and teaching. Faculty has provided staff development in learning and teaching through induction, mentoring, in house workshops and support for Graduate Certificate and further studies in higher education. More than 30 staff have completed the Graduate Certificate and 5 have pursued further studies.

Impact of scholarly practice in teaching and learning
The Faculty leads the University in the rate of staff participation in teaching scholarship, assessed by the Scholarship Index, which attracts annual Scholarship Index funding (***Fig. 12.1***) http://www.usyd.edu.au/learning/quality/si.shtml .

Fig. 12.1 Number of staff disseminating teaching scholarship 2002-2006



Increasing numbers of staff participate in researching and publishing the results of their teaching scholarship. A detailed list of the publications and conference presentations are provided annually in the University's calculation of Scholarship Index funds (available on request). The impact of scholarly teaching has been substantial, e.g.*"The most powerful part has been the courage that comes from knowing the evidence, based on the scholarly literature in education, that you are on the right track. I would never have had the courage to*

contradict one of the senior staff (who taught me) over teaching matters in the past, but now I am happy to do so." (Grad Cert feedback, 2003).

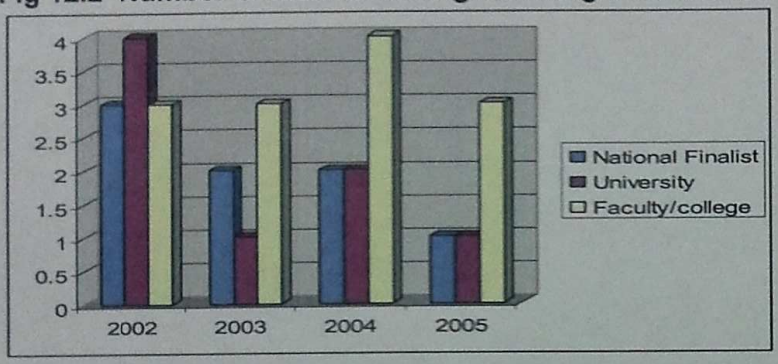
Impact of teaching innovation and improvement

Faculty has been consistently successful in attracting University and external funds to support a range of teaching improvement projects. The results of these are reported on http://www.usyd.edu.au/learning/quality/tif.shtml and will be available for demonstration (range of online, case based and interactive learning resources and activities). It also has a well resourced, highly productive teaching innovations unit, which has consistently attracted external funds and helped to integrate online and inquiry-based learning throughout the curriculum. The impact has been steady improvements of students' perceptions of their online learning experiences and the Faculty's strong reputation for innovation in online learning in the University (case based learning team awarded Australasian Pearson online learning award in 2006 and invited presentation at Asia-PacificVeterinary Conference, 2006).

Evidence of Excellence: External Awards in Teaching and Student Support

Faculty has recently had a very high rate of success in University and National (Carrick, ACE, AVA, Pearson) teaching awards to individuals and teams ***(Fig 12.2)***

Fig 12.2 Number of staff receiving teaching awards 2002-2006



Evidence of Impact on Faculty Teaching and Learning Climate

Staff report very positive perceptions of the teaching and learning climate in Faculty ***(Table 12.10)***. This is significant because the research literature in higher education leadership of teaching has identified that the highest quality climate for student learning is created where teachers take a conceptual-change focussed approach to teaching (Trigwell, Prosser and Waterhouse, 1999). This teaching context is more likely where staff work collaboratively within an agreed framework, created by higher quality forms of academic leadership (Martin, Trigwell, Prosser and Ramsden, 2003). These changes are also noted by students who experience this atmosphere in staff-student interactions, e.g. *"There is very little hierarchy-most staff treat one as an equal"* (Year 4 student, SCEQ 2005).

Table 12.10 Staff survey on Faculty teaching and learning climate (May 2007)

Questions about the Faculty's support for T&L	SA & A %	N %	SD & D %
Aims and expected standards for T&L are clear to staff and students	88	6	6
Committed & effectively pursuing its goal of excellence in T&L	88	9	3
The graduate certificate is important to prepare of staff for T&L roles	82	12	6
Provides effective support for development and delivery of online learning	88	3	9
Support is available for the timely preparation of T&L materials	82	18	0
Has sufficient staff for sustainable delivery of high quality T&L	12	24	63
I aim to engage students in active, deep learning to achieve learning outcomes	73	24	3
Implemented effective strategies to foster a vibrant T&L culture	73	24	3
Policy and processes support students and staff in T&L	87	12	0
Evaluation of student learning experience is used to improve T&L	94	6	0

Anonymous, online survey May 2007 n=34 SA- strongly agree, A- Agree, N- neutral, SD- strongly disagree, D-disagree

Contribution to University and National debate on Teaching and Learning
Faculty staff are regularly invited contributors to University, national and international education initiatives, particularly to the Graduate Certificate program. Involvement includes: presentations at AVA education days, participation on AVMA and VSAAC accreditation committees, external education consultancy, Academic Board review panels, Teaching prize panels, University online learning project board and invited presentations to other Faculties and Universities *(data available upon request during site visit).*

12.3 Suggestions

What processes are being considered to improve the ability of the Faculty to monitor the outcomes of the degree program?

How can the key stakeholders be engaged more effectively to provide feedback about areas of strength and weakness in the current degree program?

Changes to monitoring processes which Faculty has been considering to provide better information and feedback on the long term impact of the BVSc program are:

1. Monitoring Graduate Professional Life
Establishing a well designed, validated survey, supported with selected interviews and focus groups to monitor graduates experiences of the transition to practice, career development, satisfaction and longevity in the veterinary profession. As the 2005 graduates of the new curriculum have already been part of an intensive study of their final year and new graduate experiences, they will be the first year to be surveyed, most likely at 3, 5, 10 and 20 years after graduation.

2. Surveys of Employers of Sydney graduates
Faculty is considering developing an employer survey, particularly to monitor graduate capability and performance in the first 1 to 2 years of transition to practice, possibly based on the RCVS scheme.

3. Final Year and new Graduate Mentoring
Stronger mentoring programs for students in final year rotations and new graduates Faculty's mentoring program has been a voluntary one, driven by graduate needs. A more intensive, structured mentoring program is under consideration.

4. Expansion of external examiners in final year intramural assessment
The intramural rotations play an important role in ensuring students have attained a high, current standard of knowledge, skills and ability in clinical practice, particularly in demonstration of achievement of the RCVS day 1 and some year 1 capabilities. The assessment of students' achievement of learning outcomes, in written, oral and practical assessments would add a valuable dimension of external benchmarking and review to the curriculum.

5. Assessment and evaluation of students' demonstration of graduate attributes in professional placements in years 1-4
The current paper-based system for extramural practitioners and farmers who host student placements in years 1-4 will be aligned to the year 5 forms. These will be adapted to an online form to enable better tracking of student progress, feedback on development of graduate attributes and ready analysis of strengths and weaknesses of the curriculum, particularly in animal handling, professional behaviour and communication.

Comment: Faculty has recently appointed two additional staff to assist with the Professional Practice and Year 5 extramural program. One new staff member, supported by Scholarship Index funds, will be working half time in an evaluation and quality enhancement role, with the brief of strengthening Faculty's follow up with graduates and the profession.

Appendices Outcomes Assessment (Standard 12)

Year 5 Student exit survey

Rotation design

Final year students complete an anonymous online exit survey after the completion of all rotations. Following feedback from students (survey and written comments) the number of rotations, required rotations, length and sequence of rotations were modified each year since 2004 to produce the optimal learning experience *(**Table 12.11**)*. For example, in order to increase flexibility, in 2007 students created their own rotation schedules (apart from defined UVCS, UVCC and database RPP rotations due to resource limitations). There were sufficient placements available through the database to accommodate these selections.

Table 12.11 Design of rotations in year 5; Students' recommended combination of rotations

Type of rotation	Current number	Most Frequent Response (% of students)	Second Most Frequent Response (% of students)
Intramural UVCS	3	3 (48%)	2 (25%)
Intramural UVCC	1	2 (37%)	1 (34%)
Small animal practice extramural	1	1 (63%)	N/A (30%)
Rural mixed practice extramural	1	1 (61%)	N/A (23%)
Rural public practice	1	N/A (57%)	1 (43%)
Elective placements	2	2 (41%)	3 (18%)
Vacation periods	3	3 (44%)	2 (41%)
Total rotation number	12		

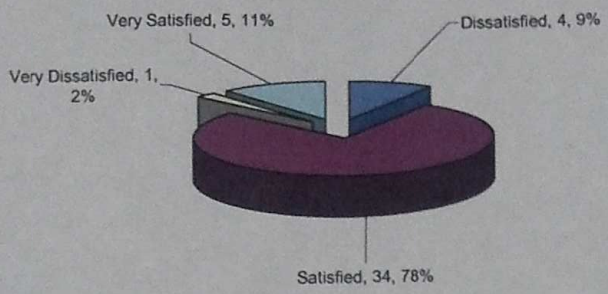
Learning resources

Students found the range of materials provided useful, to varying degrees *(**Table 12.12**)*. The lecture material is now provided on CD following feedback from students and practitioners on its usefulness. The University introduced a new version of WebCT in 2007. The Faculty redesigned VEIN in 2006/7 and changes to the Virtual Clinical Campus to make it more focussed on supporting learning are planned *(**Fig. 12.3**)*.

Table 12.12 Students' evaluation of the usefulness of learning resources

Resource	1 & 2 (very useful & useful)	3 & 4 (somewhat or of limited use)	5 (not useful)
VEIN Uni	25%	52%	23%
WebCT	25%	61%	14%
Library services	52%	34%	14%
Practice's library	66%	29%	5%
Extramural Handbook	34%	61%	5%
Lecture material CD	50%	39%	11%
Year 5 Virtual Campus	34%	36%	20%

Fig. 12.3 Satisfaction with the Virtual Veterinary Campus website



Prior units as preparation for year 5 clinical placements

Students reported prior development of key graduate attributes was of varying degrees of usefulness ***(Table 12.13)***, emphasising the important role that context plays when practising and demonstrating these skills.

Table 12.13 Students' evaluation of usefulness of prior units in preparing for clinical placements

Rating of prior units of study which addressed:	1 & 2 (very useful & useful)	3 & 4 (somewhat or of limited use)	5 (not useful)
Group work	32%	52%	16%
Communication skills	40%	46%	14%
Clinical skills	41%	48%	11%
Animal handling skills	52%	41%	7%
Practice management	57%	34%	9%

Value of learning and assessment tasks

The learning tasks for each rotation were mainly considered to be useful or very useful, with the exception of the journal entries, which were not favoured as learning tasks for many students, despite their earlier experience with similar tasks in Professional Practice units ***(Table 12.14)***. Case logs and receiving feedback on the Supervisors Report Form (during interview) were considered the most useful, and most closely reflect the forms of assessment of quality practice used in the profession.

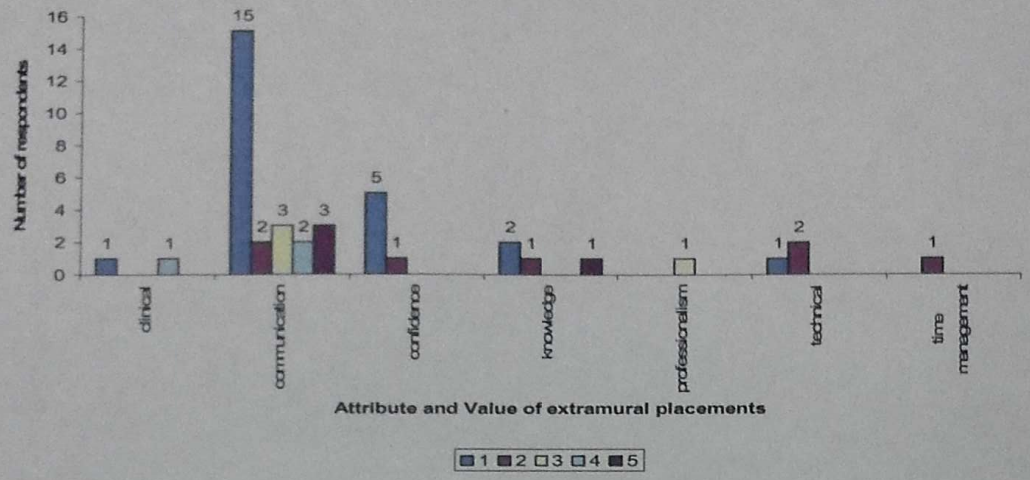
Table 12.14 Students' evaluation of the usefulness of required tasks in achieving learning outcomes

Year 5 learning and assessment tasks	1 & 2 (very useful & useful)	3 & 4 (somewhat or of limited use)	5 (not useful)
Written report	48%	41%	11%
Case logs	72%	21%	7%
Journal entries	21%	44%	35%
Communication task	48%	41%	11%
Meetings with supervisors	50%	41%	9%
Receiving feedback	84%	16%	0%

Attributes vital to success as a veterinarian

The first attribute considered by students to be vital to success as a veterinarian was communication skills (60%) and confidence (14%). Knowledge, technical skills and clinical skills were also mentioned first by a number of respondents. All but one student reported rotations were valuable in developing their communication skills *(Figure 12.4)*.

Fig. 12.4 First attributes considered vital to success as a veterinarian and rating of the value of extramural placements in developing this attribute (1 very valuable to 5 of no value)



Students' evaluation of the structure of the final year program

Students held positive views of the value of the rotations in achieving the broad aims for extramural studies defined by the RCVS ***(Table 12.15)***, the opportunities for learning in year 5 extramural rotations ***(Table 12.16)***, intramural rotations ***(Table 12.17)***.

Table 12.15 Students' rating of the value of each rotation type in achieving the broad aims of an extramural studies (EMS) program (defined by RCVS) in 2006

Broad aims of EMS defined by RCVS	Year 5 rotations									
	Rural mixed practice		Rural public practice		Small animal practice		UVCS		UVCC	
	Valuable	Not Valuable	Valuable	Not Valuable	Valuable	Not Valuable	Valuable	Not Valuable	Valuable	Not Valuable
Linking theory with practice	74%	5%	35%	40%	82%	7%	84%	9%	65%	13%
Developing an ability to identify a range of diseases	74%	10%	31%	43%	79%	7%	78%	4%	67%	22%
Developing an ability to treat a range of diseases	66%	11%	16%	66%	80%	9%	75%	9%	60%	11%
Developing interpersonal skills	82%	9%	50%	20%	86%	7%	67%	13%	57%	23%
Gaining an appreciation of practice organisation & management	70%	14%	25%	68%	75%	9%	36%	28%	25%	45%
Gaining an insight into professional life	88%	7%	59%	27%	91%	7%	65%	12%	64%	16%
Gaining an insight into career options	72%	14%	72%	18%	70%	10%	70%	14%	73%	16%

Gaining the technical skills required for veterinary practice	79%	10%	29%	53%	87%	12%	64%	16%	55%	27%

Table 12.16 Intern feedback on learning opportunities in extramural rotations in 2006

Placement	Rating	Learning Opportunities						
		Discuss Cases	Examine Animals	Practical Experience	Interact with Clients	Discuss Progress	Discuss Management	Recommend to other students
Small Animal Centres (n=270)	Excellent	57%	69%	63%	38%	51%	32%	57%
	Good	32%	22%	22%	36%	39%	37%	32%
	Average	9%	7%	12%	18%	7%	26%	7%
	Poor	1%	2%	3%	7%	2%	5%	3%
	Very poor	1%			1%	1%		1%
Rural Public Practice (n=97)	Excellent	72%	39%	44%	43%	57%	37%	53%
	Good	20%	30%	27%	34%	38%	41%	33%
	Average	5%	17%	16%	14%	3%	17%	12%
	Poor	2%	11%	10%	5%	2%	4%	2%
	Very poor	1%	3%	3%	4%		1%	
Rural Mixed Practice (n=149)	Excellent	67%	75%	68%	58%	60%	49%	72%
	Good	26%	19%	21%	30%	32%	35%	19%
	Average	6%	5%	8%	10%	6%	14%	6%
	Poor	1%		1%	1%	2%	2%	2%
	Very poor		1%	2%	1%			1%
Wildlife Centres (n=34)	Excellent	62%	32%	33%	18%	48%	29%	56%
	Good	35%	35%	32%	18%	41%	39%	31%
	Average	3%	22%	24%	37%	8%	25%	13%
	Poor		11%	8%	27%	3%	7%	
	Very poor			3%				
Equine Centres (n=45)	Excellent	65%	68%	51%	45%	46%	42%	53%
	Good	27%	24%	33%	29%	41%	40%	37%
	Average	8%	8%	14%	24%	8%	21%	10%
	Poor			2%	2%	5%	2%5%	
	Very poor						2%	
Education and Research Centres (n=32)	Excellent	48%	44%	56%	23%	33%	25%	58%
	Good	35%	26%	31%	22%	52%	35%	33%
	Average	17%	26%	13%	11%	15%	30%	9%
	Poor		4%		22%		10%	
	Very poor				22%			

Table 12.17 Intern feedback on learning opportunities in intramural rotations in 2006

Placement	Rating	Learning Opportunities						
		Discuss Cases	Examine Animals	Practical Experience	Interact with Clients	Discuss Progress	Discuss Management	Recommend to other students
Anaesthesia and Intensive Care (UVCS)	Excellent	**84% (77)**	**87% (80)**	**90% (83)**	**7% (6)**	**84% (77)**	**20% (18)**	**82% (75)**
	Good	**13% (12)**	**13% (12)**	**9% (8)**	**2% (2)**	**14% (13)**	**44% (41)**	**14% (13)**
	Average	3% (3)		1% (1)	11% (10)	2% (2)	23% (21)	2% (2)
	Poor				17% (16)		3% (3)	
	Very poor				12% (11)			
					51% (47)		10% (9)	2% (2)
Primary Accession (UVCS)	Excellent	**63% (55)**	**84% (73)**	52% (45)	89% (77)	**58% (50)**	**16% (14)**	**53% (46)**
	Good	**29% (25)**	**15% (13)**	38% (33)	11% (10)	**29% (25)**	**32% (28)**	38% (33)
	Average	6% (5)	1% (1)	8% (7)		11% (10)	41% (35)	2% (2)
	Poor	2% (2)		1% (1)		1% (1)	6% (5)	1% (1)
	Very poor			1% (1)		1% (1)	2% (2)	1% (1)
							3% (3)	5% (4)
Referral Medicine (UVCS)	Excellent	**60% (53)**	**59% (52)**	**36% (32)**	**57% (51)**	**54% (48)**	**18% (16)**	**53% (46)**
	Good	**33% (29)**	**35% (31)**	**47% (41)**	**38% (33)**	**31% (27)**	**35% (31)**	**36% (32)**
	Average	7% (6)	5% (4)	13% (11)	5% (4)	13% (11)	34% (30)	7% (6)
	Poor		1% (1)	3% (3)		2% (2)	6% (5)	
	Very poor			1% (1)			1% (1)	1% (1)
								3% (3)
Small Animal Surgery (UVCS)	Excellent	**50% (43)**	**52% (44)**	**20% (17)**	28% (24)	**33% (28)**	**12% (10)**	**28% (24)**
	Good	**45% (38)**	**36% (31)**	**38% (32)**	44% (37)	**47% (40)**	**46% (39)**	**57% (49)**
	Average	5% (4)	12% (10)	34% (29)	27% (23)	19% (16)	33% (28)	11% (9)
	Poor			8% (7)	1% (1)	1% (1)	8% (7)	
	Very poor						1% (1)	4% (3)

Assessment of Student Achievement of Graduate Attributes in Year 5 rotations

Extramural supervisors reported high levels of confidence in students' capability in most Graduate Attributes and in most rotations *(detailed individual analysis of trends available on request during site visit)* ***(Tables 12.18 and 12.19)***. Students' self-assessment of their achievement of learning outcomes was very high using a simple yes/no score ***(Table 12.20)***.

Table 12.18 Extramural Supervisors Assessment of Student Achievement of Graduate Attributes- Summary of Supervisors Report Form Results in 2006

Criterion	Grade	All Rotations	Small Animal Practice	Rural Mixed Practice	Rural Public Practice
Understanding and application of knowledge					
	Unsatisfactory	0% (1)		1% (1)	
	Marginal	2% (12)	4% (7)	1% (1)	
	Satisfactory	20% (103)	27% (49)	19% (23)	16% (16)
	Proficient	57% (303)	51% (91)	62% (75)	60% (58)
	Outstanding	21% (109)	18% (32)	17% (21)	24% (24)
Data Collection					
	Unsatisfactory				
	Marginal	1% (6)	2% (3)	2% (2)	
	Satisfactory	16% (85)	22% (39)	18% (22)	9% (9)
	Proficient	63% (329)	59% (106)	61% (74)	65% (63)
	Outstanding	20% (107)	17% (31)	19% (23)	26% (25)
Data interpretation and problem solving					
	Unsatisfactory	0% (2)	1% (1)	1% (1)	
	Marginal	2% (9)	3% (6)		
	Satisfactory	23% (120)	28% (50)	29% (35)	19% (18)
	Proficient	57% (302)	53% (94)	51% (62)	65% (63)
	Outstanding	18% (93)	15% (27)	19% (23)	16% (16)
Decision making					
	Unsatisfactory	0% (1)		1% (1)	
	Marginal	3% (16)	5% (9)	2% (3)	1% (1)
	Satisfactory	23% (122)	26% (47)	31% (38)	21% (20)
	Proficient	54% (283)	51% (91)	49% (59)	51% (50)
	Outstanding	20% (104)	18% (32)	17% (20)	27% (26)
Technical competency					
	Unsatisfactory				
	Marginal	3% (15)	3% (5)	4% (5)	1% (1)
	Satisfactory	24% (124)	30% (54)	29% (35)	20% (19)
	Proficient	50% (266)	44% (79)	42% (49)	58% (56)
	Outstanding	23% (119)	23% (41)	25% (30)	21% (20)
Communication skills					
	Unsatisfactory				
	Marginal	2% (9)	2% (3)	3% (3)	2% (2)
	Satisfactory	13% (66)	17% (30)	12% (14)	11% (11)
	Proficient	55% (292)	52% (94)	58% (70)	58% (55)
	Outstanding	30% (155)	29% (52)	27% (32)	29% (28)
Interpersonal skills					
	Unsatisfactory	0% (1)			
	Marginal	2% (12)	3% (5)	3% (3)	1% (1)
	Satisfactory	15% (78)	18% (33)	17% (20)	15% (15)
	Proficient	42% (219)	38% (68)	40% (49)	53% (51)
	Outstanding	41% (217)	41% (73)	40% (48)	31% (30)
Professionalism					
	Unsatisfactory	0% (2)	1% (1)		

	Marginal	2% (10)	2% (4)	2% (2)	1% (1)
	Satisfactory	10% (52)	11% (19)	16% (9)	6% (6)
	Proficient	39% (203)	39% (69)	33% (40)	49% (47)
	Outstanding	49% (259)	47% (86)	49% (59)	44% (43)
Humanistic values					
	Unsatisfactory	0% (1)			
	Marginal	1% (4)	2% (3)	1% (1)	
	Satisfactory	11% (59)	15% (27)	11% (13)	10% (10)
	Proficient	49% (257)	44% (79)	43% (51)	63% (61)
	Outstanding	39% (206)	39% (70)	45% (55)	27% (26)

Table 12.19 Summary of year 5 students' achievement of all Graduate Attributes in extramural rotations in 2006

Grade	All Rotations	Small Animal Practice	Rural Mixed Practice	Rural Public Practice
Unsatisfactory	0% (1)		1% (1)	
Marginal	2% (12)	3% (5)	3% (4)	1% (1)
Satisfactory	17% (88)	21% (38)	21% (25)	18% (17)
Proficient	52% (271)	48% (85)	47% (57)	51% (50)
Outstanding	29% (152)	28% (51)	28% (33)	30% (29)

Table 12.20 Summary of students' self-assessment of achievement of Learning Outcomes in 2006

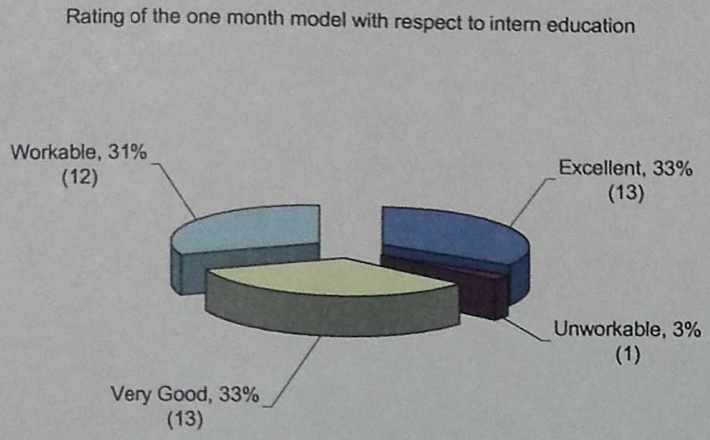
Rotation Type	Achieved learning outcomes	1#	2	3	4
Small Animal Practice	**Yes**	**96% (172)**	**96% (173)**	**99% (178)**	**99% (178)**
	No	4% (8)	4% (7)	1% (2)	1% (2)
Rural Public Practice	**Yes**	**99% (100)**	**97% (98)**	**98% (99)**	**98% (99)**
	No	1% (1)	3% (3)	2% (2)	2% (2)
Rural Mixed Practice	**Yes**	**97% (118)**	**99% (121)**	**98% (120)**	**98% (119)**
	No	3% (4)	1% (1)	2% (2)	2% (3)
Wildlife Centres	**Yes**	**97% (36)**	**100% (37)**	**100% (37)**	**86% (32)**
	No	3% (1)			14% (5)
Equine Centre	**Yes**	**100% (59)**	**98% (58)**	**100% (59)**	**98% (58)**
	No		2% (1)		2% (1)
Education and Research	**Yes**	**100% (33)**	**100% (33)**	**100% (33)**	**97% (32)**
	No				3% (1)

Learning Outcomes 1-4 are students' negotiated learning outcomes 2006 data

Evaluation of the year 5 clinical program by extramural and intramural supervisors and staff

In a survey of extramural supervisors 66% of respondents rated the new one month model as either excellent or very good with respect to intern education. The most positive response came from rural mixed practitioners and the only unworkable response was from a zoological parks and wildlife placement *(Fig 12.5)*.

Fig 12.5 Supervisors' ratings of rotation program



Supervisors' evaluation of learning and assessment activities

Extramural supervisors considered the learning and assessment activities undertaken by students to be valuable.

- 90% of respondents considered the communication task to be of value to the intern
- 58% of supervisors considered this task to be either very useful or excellent in terms of value to their organisation.
- 74% rated the initial interview as either very useful or excellent for establishing a strong relationship with the intern
- 81% of supervisors find the second meeting either very useful or excellent for providing feedback to interns
- 90% of respondents thought the introduction letter and telephone contact prior to placement were valuable
- 89% of supervisors discuss intern progress with other practice staff

Supervisors' evaluation of Supervisors Report Form as an assessment instrument

84% of supervisors agreed that the Supervisors Report Form is either very useful or excellent for pinpointing intern strengths, only 63% believed that it is either very useful or excellent for pinpointing intern weaknesses. 21% of supervisors stated that they are not sure if they would be able to identify an intern 'at risk', however the SRF results for each year show that supervisors are consistently identifying students with difficulties. This was addressed by development of more detailed grading criteria and through training workshops conducted for Partner Practitioners at the annual conference.

Evaluation of program by Rural Public Practice Supervisors

A survey of District Veterinarians who supervise students in the Rural Public Practice rotations was undertaken in 2005. 17/39 responded (44%) drawn from rural locations across NSW. The findings were:

- 88% agreed students were prepared with a sufficient knowledge base
- 68% agreed students had sufficient technical skills
- They found the students were enthusiastic, had good communication, information literacy skills and knowledge of disease, but felt they could be better prepared with large animal handling skills, industry knowledge and experience of rural life
- 100% agreed the Rural Public Practice enabled students to link theory and practice, to develop interpersonal skills, gain an insight into professional life, career options, while fewer believed the rotations enabled development of technical skills and experience in diagnosis and management of disease.