Postgraduate Certificate in Laboratory Animal Sciences

1.	
1.1 Name of the Extension Course	Postgraduate Certificate/ Postgraduate Diploma in Laboratory Animal Science
1.2 Full title	Postgraduate Certificate/ Postgraduate Diploma in Laboratory Animal Science
1.3 Abbreviated title	PGCert (LAS)/ PGDip (LAS)
2.	
2.1 Department/s	Physiology
2.2 Name of the Course Organizer/Director ~~current Chairperson/Coordinator~~	Prof Mangala Gunatilake, *BVSc, PhD, FSLCVS, CertLAS*
2.3 Names of the committee members	Not Applicable
2.4 Objectives/Goals of the course (Learning outcomes)	• demonstrate knowledge and principles (anatomical, physiological and behavioural) that are essential for the use and care of animals recruited for research • apply ethical principles in lab animal research when designing an animal experiment • recognize appropriate sedative, anaesthetic and analgesic drugs and methods that could be used in surgeries of lab animals • discuss the physical environment and optimal conditions necessary for management of an animal house • demonstrate all relevant practical aspects in animal experiments including animal handling, feeding, injecting substances, harvesting organs and suturing • use efficiently and effectively 'Replacement, Refinement, Reduction, Responsibilities and Rehabilitation' concepts in laboratory animal science when conducting an animal experiment • critically appraise published reports and journal articles related to laboratory animal science • use appropriate statistical knowledge and skills in conducting research • develop suitable alternative models using local material with creativity and innovation • use the knowledge acquired to develop a protocol using lab animals and/or alternatives

	• demonstrate skills in communication, team work and leadership, creativity and problem solving, networking and social skills and other professional values which are required as scientists/researchers • Demonstrate self-direction and originality in managing problems Demonstrate the ability to plan and implement tasks independently in a professional manner with adaptability and flexibility when developing and conducting a research or education related projects in LAS (Conducting a research or education related project is applicable only for the Postgraduate Diploma)
2.5 SLQF level	Certificate - 7, Diploma - 8
2.6 No. of credit hours	Certificate - 20, Diploma - 26
3.	
3.1 Date of senate approval - Please attach a copy of the minute	Please see Attachment 1.
3.2 Date of financial committee approval - Please attach copy of the minute	Please see Attachment 2.
3.3 Year started	UGC has approved these two courses in Dec 2016 and a copy of the letter to this effect was received on 16th Jan 2017 while I was on Sabbatical leave. Did not run the course and I will initiate work in 2018 to conduct the courses.
3.4 Frequency of the course	On annual basis
3.5 Course delivery (weekends only/weekdays/online only/both online and class room/full time/ part time) Pl. give details.	In-class teaching for the Postgraduate Certificate and Diploma will be conducted once a week and time allocation will be approximately 170 hours – for lectures and practicals, In addition to these 170 hours, approximately 75 hours will be spent on group tasks by the participants during the course. (**Time spent on self-directed learning is not included in this).** Participants who opt for the Postgraduate Diploma should work on an approved project (research or education related) of six months duration.
3.6 Entry criteria (Include both basic and lateral entry criteria)	1. A Bachelor (SLFQ 5) or Honorary Bachelor (SLFQ 6) degree from a recognized university, in either Veterinary/Bioscience/Pharmacy/Biomedical/Medical Laboratory Science/ Ayurvedic Medicine & Surgery /Medical Laboratory Technology/ Nursing/ Physiotherapy/ Genetics/ Medical/ Dental are eligible to apply for the Postgraduate Certificate Course **And for the Postgraduate Diploma**

	2. Those who successfully complete the Postgraduate Certificate in Laboratory Animal Science will be eligible to apply for the Postgraduate Diploma.
3.7 Mode of advertising of the course	Researchers will be invited for this Postgraduate Certificate/Diploma through a Newspaper advertisement in a weekend English Newspaper and through a letter addressed to the Head of the Research Institution/University and through the internet links, course details will be passed to international communities.
3.8 Admission process - written paper/interview	A person who wishes to become a student of the course shall make an application to the Deputy Registrar/Assistant Registrar of the Faculty of Medicine, Kynsey road, Colombo 08 in the prescribed application form. Applications received by the Deputy Registrar/Assistant Registrar shall be referred to the Director of the course. The Director, having examined the applications with necessary qualifications, shall make the selection. The size of the intake will be announced at the time of calling for applications. The participants who are willing to continue for the Postgraduate Diploma following successful completion of the Postgraduate Certificate in Laboratory Animal Science should submit a proposal within 2 weeks after successful fulfillment of the criteria for awarding the Postgraduate Certificate. The proposals will be scrutinized by the Course Director and approval will be given for suitable projects.
3.9 Minimum and maximum number enrolled per course	Number of participants will be limited to 40 for both Postgraduate Certificate and Diploma
3.10 Programme duration in months	Certificate - 6, Diploma - 12
3.11 Teaching/ learning methods (lectures, SGD, Laboratory and field work, online learning, self-learning, formative assessments)	• Lectures • Practical sessions • Video presentations • Group discussions/ tasks • Self-directed learning • Formative assessments • Project (Only for the Diploma)
3.12 No. of hours of teaching (Please attach in the format given here)	Please see the attachment 3.
3.13 Credit allocation within each module	Please see the attachment 3.
3.14 Core course content	Please see attachment 4.

3.15 Course evaluation method	**CRITERIA FOR AWARDING THE POSTGRADUATE CERTIFICATE** A. Minimum 80% attendance in all teaching sessions is needed to be eligible to sit the End of course Assessment. B. Group tasks (20% marks of this activity will be taken for final mark) C. End of course assessment – 3 hour SEQ paper (80% marks will be taken for final mark) D. Component B and C are compulsory for all the eligible participants. E. Minimum 50% for components B and C will be the pass mark. F. Those who qualify under A, B, C, D and E will be eligible for the Postgraduate Certificate in Laboratory Animal Science. G. Those who do not obtain 50% for components B and C with 80% attendance will be able to sit the End of course assessment with the next batch in the following year. H. Those who do not qualify under A, B, C, D and E in the two consecutive attempts given will have to enroll as a new student and follow the course from the beginning if he/she wants to qualify for the Certificate. **CRITERIA FOR AWARDING THE POSTGRADUATE DIPLOMA** Completion of the Project intended for the Postgraduate Diploma and submission of the project report at the end of the allocated period of time. Examiners will be appointed to evaluate project reports by the Course Director. Participants will be requested to make a 20 minutes presentation and to appear for a viva examination. 1. Project report : 75% marks (pass mark 50%) 2. Presentation : 15% 3. Viva : 10% All components (1, 2 and 3) are compulsory. Those who do not obtain pass marks for the project report could make revisions as per the examiners comments and resubmit within 2 weeks to be eligible for the Postgraduate Diploma.
3.16 Qualification criteria (pl. give the mark allocation of the final evaluation of the candidate)	Please see the information give under 3.15.
3.17 Profile of the panel of lecturers (internal / external)	**International** Prof Vera Baumans – (International Advisor, Netherlands), PhD, Lab animal science expert Mr Pim Rooymans (Netherlands), BSc Dr Jan Meijer (Netherlands), PhD Dr Montip Gettayacamin (Thailand), PhD Dr Vijay Pal Singh (India), PhD

	Prof M Akbarsha (India), PhD **Local - Internal** Prof Mangala Gunatilake Dept. of Physiology, UOC) Prof Preethi Soysa (Dept. of Biochemistry, UOC) Dr Dilshani Dissanayake, Dept. of Physiology, UOP) Dr Tharanga Thoradeniya (Dept. of Biochemistry, UOC) Dr Dulani Samaranayake (Dept. of Community Medicine, UOC) **Local- External** Prof Preethi Udugama (Dept. of Zoology, UOC) Dr Kamal Perera (IIM, UOC) Dr Mayuri Thammitiyagodage (Head/Animal House, MRI) Prof Sugandhika Suresh (Senior Lecturer, Dept of Biochemistry, SJP) Dr Eranga Rajapaksha (Senior Lecturer, Dept. of Veterinary Clinical Medicine, University of Peradeniya) Dr Nayana Wijewardane (Senior Lecturer, Dept. of Veterinary Clinical Medicine, UOP) Dr Ramani Karunakaran of MRI Dr Chamila Layanaarachchie (Senior Lecturer, University of Peradeniya)
3.18 External / Internal collaborators	Utrecht University, Netherlands
3.19 Course administration and management	Course Director as per the rules and regulations of University of Colombo (According to approved By-Laws)
3.20 Is this in the corporate plan of the department	Yes. this was included during the time period of 2009-2012 when course Director was Head of the Department
3.21 Funding with external organizations	Course Director might apply for funds to cover the cost of attendance of several International resource persons
4.	
4.1 Tuition fees (In Rupees)	A course fee of Rs. 30,000/- will be charged for the Certificate course. For the Postgraduate Diploma course an additional Rs. 20,000/- will be charged.
4.2 Other fees if any (Specify)	Application fee (Rs 270/- per application) and registration fee (Rs. 2000/- per student)
4.3 Average number of students per batch	40 (30 for the Certificate and 10 for the Diploma)
4.4 Any relevant information not stated above	Lectures by internationals if they are not in a position to attend, will be conducted as video presentations sent by them.

Description of the Extension Courses

Faculty of Medicine, University of Colombo

Postgraduate Certificate in Laboratory Animal Sciences

Attachment 1

the minutes of the 387th meeting of the Senate held on 29-10-2014

387.8 EXTRACTS OF THE MINUTES OF THE 391st MEETING OF THE FACULTY BOARD OF THE FACULTY OF MEDICINE HELD ON 09TH SEPTEMBER 2014:

The minutes were presented.

387.8.1 (5051.3) Retirement of Professors R Seneviratne, Rezvi Sheriff and Hemamali Perera.

The Senate noted the retirement of the above Professors who have served the Faculty for over three decades. and thanked them for the valuable contributions made by them towards academic work, research and for providing leadership .

387.8.2 (5051.9) Achievements by the following members

The Senate congratulated the Folowing members for their achievements.

9.1 Prof Ishan de Zoysa for delivering the Milroy Paul Oration on 'Biomarkers as predictors of metastasis in colorectal carcinoma' at the College of Surgeons Academic Sessions which was held on 23rd August, 2014 and for receiving Daphne Attygalle Prize for the best paper in Cancer at the SLMA annual academic sessions 2014.

9.2 Prof P Galapaththy who was awarded the SE Seneviratne Prize and special prize in Cardiology for a paper presented at the SLMA annual academic sessions 2014.

9.3 Prof Ishan de Zoysa and Prof DN Samarasekera for authoring the following publications.

Name of the Journal	Title	Authors
Asia Pac J Clin Oncol, 2014 Feb 27. Doi: 1111/ajco. 12168	Predictors in breast cancer screening behaviors of South Asian women.	Perera JC, Peiris V, Wickramas... DP, **De Zoysa I.**
BMC Surg. 2014 Apr 16; 14:21.doi: 10.1186/1471-2482-14-21.	Neurofibroma invading into urinary bladder presenting with symptoms of obstructed defecation and a large perineal hernia.	Subasinghe D, Keppetiyagama C... Silva C, Perera ND, **Samarasekera...**
BMC Med Educ. 2013 Dec 28; 13:175. doi. 10.1186/1472-6920-13-175.	Patterns and trends of medical student research.	Wickramasinghe DP, Perera Senarathna S, **Samarasekera DN.**

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387.8.3 (5053.3) Extension Courses - International Certificate/Diploma Course on Laboratory Animal Science

The Senate recommended the International Certificate/Diploma Course on Laboratory Animal Science to the Legislation Committee for its consideration.

(Annexure already circulated)

387.8.4(5054) Ethics Review Committee

As recommended by the Faculty Board, the Senate granted ethical clearance to the following projects.

	Item	Description	Descriptio...
01	**EC-14-059** : Investigation of the impact of an eHealth system prototype in reducing nosocomial infections in three surgical intensive care units (ICU) in Sri Lanka **Investigators** : Associate Professor Paul Turner, Dr Palitha Mahipala, Dr Ming Chao Wong, Dr Nadish Kariyawasam **Address of PI** : School of Engineering and ICT (New name from 2014), University of Tasmania, Private Bag 87, Hobart, Tasmania 7001, Australia **Study setting** : Selected surgical intensive care units	Approved	The proposal ... approved by ... ERC at its me... on 24.07.2014
02	**EC-14-071** : The effect of progressive resistance and aerobic exercise training on behavioral, physical and biochemical parameters in Sri Lankan adults with type 2 diabetes mellitus. **Investigators** : Dr DC Ranasinghe, Dr Prasad Katulanda, Professor Neil King **Address of PI** : Allied Health Sciences Unit, Faculty of Medicine, Univ. of Colombo.124/1, Barns place, Colombo 7 **Study setting** : Allied Health Science Unit, Faculty of Medicine,	Approved	The proposal ... approved by ... ERC at its m... on 24.07.20...

Attachment 2:

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UNIVERSITY OF COLOMBO

FINANCE DIVISION

File No. B/FC/353/2015

Finance Committee Meeting No: 353

Finance Committee minute No : 352.2.14

Prof Mangala Gunatilake

Department of Physiology

Faculty of Medicine

University of Colombo.

Recommendations made by the Finance Committee Meeting (353rd meeting held on 05th February, 2015)

The abstracts of the decisions made by the Finance Committee at its 353rd meeting held on 05th February, 2015 are appended below for your information.

Please take action in accordance with this decision.

(K S T S Jayasooriya)

Bursar

06-02-2015

352.2.14 Re: Budgets of the International Certificate Course on Laboratory Animal Science 2015/2016 & International Diploma Course on Laboratory Animal Science 2015/2016 – Faculty of Medicine

The Committee recommended to the Council for its approval, the budget of Rs.1,507,000/- in respect of the International Certificate Course on Laboratory Animal Science 2015/2016 & International Diploma Course on Laboratory Animal Science 2015/2016.

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Postgraduate Certificate in Laboratory Animal Sciences

Attachment 3:

No. of hours of Teaching

Name of Module	Lecture hours	Field practical hours	Small group discussion hours	Lab hours	Self-study hours	Other hours	Credit allocation
1. Introduction	7.5	0	0	0	25	0	1.0
2. Ethics and Animal Welfare	7.5	0	0	0	25	0	1.0
3. Research	10	0	0	0	25	0	1.17
4. Anatomy, physiology and behavior	9	0	0	0	25	1	1.17
5. Housing and environment	7.5	0	0	0	25	0	1.0
6. Pain management	7.5	0	0	0	25	0	1.0
7. Genetics	7.5	0	0	0	25	0	1.0
8. Pathology and Microbiology	7.5	0	0	0	25	0	1.0
9. Special Topics	7.5	0	0	0	25	0	1.0
10. Alternatives to animal experiments	17	0	0	0	50	3	2.33
11. Skills	1	0	0	75	0	0	2.57
12. Analytical and protocol development	0	0	75	0	150	0	4.5
13. End of course Assessment	0	0	0	0	70	3	1.26
14. Completion of the project and submission of project report (Only for the Diploma)	0	0	0	0	0	550	5.67
15. Presentation and viva (Only for the Diploma)	0	0	0	0	0	0.5	0.33

Postgraduate Certificate in Laboratory Animal Sciences

Attachment 4:

Core course contents of Modules:

1. Introduction
    - Introduction to Laboratory Animal Science
    - History of laboratory animal science – Global view
    - History of laboratory animal science in Sri Lanka with special reference to Faculty of Medicine, Colombo and Medical Research Institute
    - Laboratory animal species

2. Ethics and animal welfare
    - Laws and regulations applicable for use of laboratory animals– International perspective
    - Ethical guidelines - Sri Lankan perspective
    - Replacement, Refinement, Reduction, Responsibilities and Rehabilitation concepts in laboratory animal science
    - Ethics review committees
    - Ethical evaluation of research protocols
    - Discussion on research applications to an ethics committee
    - Basic principles of animal welfare
    - Animal welfare and protection organizations

3. Research
    - Introduction to preparation of an experimental protocol
    - Research methodology and designs
    - Sample size calculations
    - Statistical analysis
    - From brainwave to publication; administrative constraints or quality assurance

4. Anatomy, physiology and behavior
    - General anatomy, physiology and behaviour of lab animals
    - Species specific differences

5. Housing and environment
    - The animal and its environment
    - Environmental Enrichment
    - Management of an animal house
    - Laboratory Animal Standards – AAALAC International Accreditation

6. Pain management
    - Animal Welfare and experimental procedures
    - Peri-operative care and analgesia
    - Micro-surgical techniques
    - Anaesthesia
    - Euthanasia
    - Humane endpoints in animal experimentation

7. Genetics
    - Genetic standardization
    - Animal breeding

8. Pathology and Microbiology
    - Diseases and pathology
    - Microbiology and Gnotobiology
    - Immunity
    - Antibody production

9. Special topics
    - Telemetry
    - Nutrition of laboratory animals
    - Introduction to pre-clinical toxicity studies
    - Responsibilities of the Sri Lanka Association of Laboratory Animal Science (SLALAS)

10. Alternatives to animal experiments
    - Introduction on Alternatives to animal experiments
    - Cell culture technique
    - Zebrafish egg model – Breeding and toxicity studies
    - In vitro EpiDerm skin irritation test
    - Hen Egg Technique
    - IdMOC model

11. Skills
    - Introduction to practical training and experimental techniques
    - Hands on experience on handling, restraining, administration on substances in mice, rats
    - Suturing techniques on a non-animal model
    - Demonstration on Surgical instruments
    - Practical on SPSS package for statistical analysis
    - Mock demonstration on In vitro EpiDerm skin irritation test
    - Zebrafish egg model
    - Post mortem examination of a rat

12. Analytical and protocol development
    - Critical analysis of research articles on LAS and writing a report
    - Development of a project proposal (Research or on LAS education)

13. Completion of the project and submission of project report (Only for the Diploma)
    - Demonstrate self-direction and originality in tackling and solving problems and be able to plan and implement tasks independently in a professional manner