



UNIVERSITY OF
LIVERPOOL

Postgraduate Diploma/Masters in Veterinary Physiotherapy



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Welcome to the PgDip/MSc in Veterinary Physiotherapy Modular Programme at the University of Liverpool

As the Director of Veterinary Postgraduate Education at the University of Liverpool, I am very pleased to announce our provision of on-line modules for the PgDip/MSc in Veterinary Physiotherapy. To do so, we have an excellent team of administrative staff, fully supported by experienced academic staff and veterinarians in both the large and small animal practice. We aim to provide a stimulating and interactive program of modules and residential schools with fun, efficient and tailored education coordinated by veterinary physiotherapists and veterinarians, for graduates with a degree in human physiotherapy.

We have an emphasis on bringing together participants into a community of learning with an online or e-learning emphasis so that your 'notes', colleagues and mentors are portable and accessible wherever you are. We look forward to seeing you soon!



Professor Catherine McGowan
Director of Veterinary Postgraduate Education

Brief Overview

The University of Liverpool has developed the modular veterinary physiotherapy programme to enable qualified human physiotherapists to transfer their physiotherapy skills to the treatment of animal patients. The programme is recognized by the Association of Chartered Physiotherapist in Animal Therapy (ACPAT) as an upgrade route from Category B to A status

The 6 module Postgraduate Diploma in Veterinary Physiotherapy can be studied on a part time basis over 2 years (3 modules per year) or a 7 module Veterinary Physiotherapy MSc degree over a further (3rd) year.

All candidates will start in May, and candidates without any disruption to study will complete, the Diploma in Veterinary Physiotherapy at the end of the second year and the MSc in Veterinary Physiotherapy at the end of the third year. The maximum period of student registration under the current University of Liverpool Regulations is 4 years for the PgDip and 5 years for the MSc.

The modules are based on a blended learning approach, including distance education in an online forum, practical residential schools and clinical placements. This approach encourages communication and interaction between professional peers as well as teaching staff while maintaining flexibility, so that the programme is ideally suited to practising professionals on a part time basis.

Modules

In order to be awarded the Postgraduate Diploma in Veterinary Physiotherapy, candidates must successfully complete the following six modules:

Year 1

- VETS771 Anatomy & Biomechanics for the Veterinary Physiotherapist
- VETS772 Principles of Veterinary Physiotherapy & Approach to the Animal Patient
- VETS773 Orthopaedics of the Common Domestic Species for the Veterinary Physiotherapist

Year 2

- VETS774 Veterinary Physiotherapy Practice
- VETS775 Neuromotor System in Performance and Disease
- VETS776 Advanced Veterinary Physiotherapy Practice

In order to be awarded the MSc in Veterinary Physiotherapy, candidates must also complete a Research Project in year three (subject to approval of research proposal)

- VETS777 Research Project (MSc)

Method of Teaching

Postgraduate Diploma modules are delivered as part of a fully-taught, structured e-learning programme, where students receive support and guidance from subject specialists. Candidates do not work in isolation but as part of a teaching group, with regular contact with fellow students and academics on-line via evening journal clubs and discussion boards. Candidates will be assessed on a continuing basis and assignments are submitted online.

The virtual learning environment also includes access to the University of Liverpool's online library.

In addition, candidates attend a total of 4 weeks or 20 days practical training at the University of Liverpool, Leahurst Campus; 20 practical days with a clinical educator and an additional 10 days in veterinary practices over the two-year programme. The 50 days practical training provides candidates with the opportunity to apply the knowledge and skills learned on the programme.

Some practical training may be completed abroad for candidates studying from Australia, Sweden, New Zealand, South Africa or the USA.

An overview of the content for each module is provided at the end of this document (Appendices 1 to 7).

Module Provision Timetable

Year of Study	Module Title	Credits	Semester	Practical Requirements
Year 1	VETS771 Anatomy & Biomechanics for the Veterinary Physiotherapist	20	May – Aug	5 day residential school
Year 1	VETS772 Principles of Veterinary Physiotherapy & Approach to the Animal Patient	20	Sep - Dec	5 day residential school
Year 1	VETS773 Orthopaedics of the Common Domestic Species for the Veterinary Physiotherapist	20	Jan - Apr	5 days informal placements in veterinary hospitals
Year 2	VETS774 Veterinary Physiotherapy Practice	20	May - Aug	10 days residential school
Year 2	VETS775 Neuromotor System in Performance and Disease	20	Sep- Dec	5 days informal placements in veterinary hospitals
Year 2	VETS776 Advanced Veterinary Physiotherapy Practice	20	Jan - May	20 days clinical placements (to start after the commencement of yr 2)
Year 3	VETS777 Research Project (MSc)	60	May - May	

Practical Content

Residential Schools

Residential schools provide the opportunity of students to develop their practical skills under the guidance of Veterinary Physiotherapists and Veterinarians. Residential schools are integral to VETS771, 772 & 774. All residential schools will take place on the Leahurst Campus, Wirral.

Veterinary Hospital Placements

Students are required to attend 2 x 5 day informal Veterinary Hospital Placements as part of VETS773 & 775

Veterinary Physiotherapy Clinical Placements

Students are required to complete a minimum of 20 days on Veterinary Physiotherapy Clinical Placement with an approved Liverpool Veterinary Physiotherapy Clinical Educator. Clinical Placements start after the completion of the first year and form part of the assessment for VETS776. Details of Approved

Clinical Educators are available from the Veterinary Postgraduate Programme's Administrator Lucy Atkins - please e-mail atkinsl@liv.ac.uk

Candidate Pre-Requisite Requirements

Prerequisites for this programme are eligibility for registration with the Health Professions Council (or equivalent Physiotherapists Registration Board for international delegates). In addition, one year's recent experience working as a physiotherapist

References from a veterinarian and a physiotherapist (human or animal) in support of the applicants' suitability for the programme.

If the applicant is from a country where English is not the first Language they will be required to show evident of attainment of English at a minimum IELTS score of 7 or equivalent.

This is an award in advanced physiotherapy practice so we do expect a reasonable knowledge base of your background physiotherapy degree as well as the life skills and practice skills you have developed while working in practice. It is also expected that participants will have appropriate safe handling skills of both large and small animals prior to starting the practical components.

All candidates wishing to use the programme as an upgrade route to Category "A" Status of ACPAT membership must be registered with ACPAT before commencing the modules.

Introduction to Staff

The programme is coordinated by:

**Professor Catherine McGowan BVSc MACVSc DEIM DECEIM PhD FHEA
MRCVSSenior Editor of Animal Physiotherapy: Assessment, treatment and
rehabilitation of animals**

Cathy graduated from the University of Sydney in 1991 and went on to do both her internship in equine medicine and surgery and PhD in equine exercise physiology at Sydney University. She then spent several years in private equine practice before starting a clinical academic career at the Royal Veterinary College, London in 1999. It was here she developed her interest in aged horses and endocrine disease, and started research into Equine Cushing's Syndrome and Equine Metabolic Syndrome which has continued through her various academic posts in Queensland Australia, Helsinki, Finland and now back in the UK at Liverpool.

Cathy has been involved in post graduate Master's level education since 1999 when she developed the Royal Veterinary College Masters and Post Graduate Diploma programs in Veterinary Physiotherapy which commenced in 2000. At the University of Queensland she developed an online distance education MSc program for physiotherapists, was involved in a coursework Masters degree for veterinary surgeons and was the tutor for the post Graduate Foundation in Veterinary Science (now Centre for Veterinary Education) Equine Internal Medicine distance education course for practising veterinarians for 5 years.

Cathy is a Diplomate of the European College of Equine Internal Medicine and an RCVS recognised specialist in equine internal medicine and is currently Director of Veterinary Postgraduate Education at the University of Liverpool in the UK.

The modules are also supported by our team of administrative staff within the Veterinary Postgraduate Unit and teaching on individual modules will be supported by approved Veterinary Physiotherapists as well as Veterinarians from the School of Veterinary Science.

Suzanne Cottrill BA, BSc, MSc Vet Physio, MCSP, Cat A member of the Association of Chartered Physiotherapists in Animal Therapy (ACPAT)

Suzanne qualified in 2003 as a Physiotherapist and specialised in animal physiotherapy, gaining her Master's degree in 2007 from the Royal Veterinary College. She is qualified to work with all animals and mainly works with dogs, cats and horses but has treated a rabbit a couple of cows and even a chicken!

With an initial career in HR and sales of training courses Suzanne then worked for the NHS for 4 years after initial qualification. Her Masters research was published and she has written articles for small animal journals as well as spoken at special interest group conferences on small and large animal physiotherapy. With an accredited teaching qualification from the CSP Suzanne has been involved with student training since 2009 for both Liverpool University and UWE.

Suzanne has 2 dogs of her own, Jack Russell crosses, Max and Oscar as well as a young horse, Starsky (he came with that name), who she is training for dressage.

Fees

£1500 per module (VETS771-VETS777). Modules can be booked and paid for individually.

How to Apply

To request an application pack please contact the Veterinary Postgraduate Unit on cpdvets@liv.ac.uk or call us on +44 (0) 151 794 6016

Student Handbook

Although aimed predominately at students studying on-campus, the [handbook for Postgraduate Taught Students](#) has been written to provide all the information you need to help you through your University career and seeks to ensure that you know all there is to know about our services and facilities; where to find them and when to use them. It also sets out the rules, regulations and policies to be followed as a member of the University community and tells you about other sources of information likely to be useful to you throughout your studies.

VETS771 Anatomy & Biomechanics for the Veterinary Physiotherapist

Value: 20 credits

Notional Study Hours: 200

Aims of Module

The aim of this module is to develop in depth knowledge of the musculoskeletal anatomy and biomechanics of the common domestic species for qualified physiotherapists including a critical awareness of comparative aspects between these species and humans and how this may affect the type of locomotion or performance expected.

Learning Outcomes

At the end of this module, candidates will be able to:

1. demonstrate a comprehensive understanding of the appropriate anatomical vocabulary for describing the arrangement and orientation of a particular structure;
2. demonstrate comprehensive knowledge of the anatomy of the domestic species and critically evaluate the similarities and differences in the arrangement of muscles, bones, tendons, joints, nerves and major blood vessels between common domestic species and humans;
3. demonstrate an in depth understanding of the structure and mechanical properties of muscle, tendon, bone and cartilage evaluating the response of these structures to the mechanical environment, exercise, fatigue, ageing and injury;
4. demonstrate an in depth understanding of the biomechanics of locomotion of the horse and dog, including sports specific locomotion and factors affecting locomotion including the rider, training aids and farriery;
5. critical evaluation of the scientific literature relating to the area of study.

Module Structure

1. Anatomy of the thoracic limb

- Osteology, synovial structures and muscular arrangement of the equine and canine thoracic limb, including the thoracic limb stay apparatus in horses and use of appropriate anatomical terminology to describe and orientate a specimen
- Major nerves and blood vessels of the thoracic limb
- Cutaneous sensation and muscle function related to each major nerve in the thoracic limb.
- Normal range of motion of the joints of the thoracic limb, and structures that constrain the range of movement of a joint in a particular plane
- The role of the main thoracic limb muscle groups in locomotion including the specialised structures of the equine thoracic limb and the effect on individual joint movement and locomotion elicited by damage to a specific element of the musculoskeletal system
- The underlying anatomical structures that correspond to topographical features of the thoracic limb on the living animal

2. Anatomy of the pelvic limb

- Osteology, synovial structures and muscular arrangement of the common domestic species pelvic limb, including the thoracic limb stay apparatus in horses and use of appropriate anatomical terminology to describe and orientate a specimen
- Major nerves and blood vessels of the pelvic limb
- Cutaneous sensation and muscle function related to each major nerve in the pelvic limb
- Normal range of motion of the joints of the pelvic limb, and structures that constrain the range of movement of a joint in a particular plane
- The role of the main pelvic limb muscle groups in locomotion including the specialised structures of the equine thoracic limb and the effect on individual joint movement and locomotion elicited by damage to a specific element of the musculoskeletal system
- The underlying anatomical structures that correspond to topographical features of the pelvic limb on the living animal

3. Anatomy of the teeth, spinal column and trunk

- Osseous, muscular and other soft tissue structures of the vertebral column vertebrae
- Function of the vertebral column including passive and active structures supporting the vertebral column and contribution to locomotion in the different mammalian species
- Thoracic and abdominal wall anatomy
- Dentition in the horse and dog

4. Musculoskeletal tissues

- Mechanical properties of muscle, bone, cartilage, tendon and ligament in relation to their function in locomotion including the shape of individual bones in relation to their loading pattern in vivo;
- Individual joint components and their contribution to joint stability, movement and resistance to mechanical damage; and
- Properties of muscle proteins, structure and function in contraction (sliding filament theory of muscle contraction), muscle fibre types to their role in high speed and economical locomotion and the relationship between muscle contraction velocity and force development in concentric and eccentric contractions.

5. Biomechanics of locomotion

- Common domestic species static and dynamic conformation
- Common domestic species gait
- Kinetics and kinematics, stress and strain
- Neuromotor control and joint stability in control of movement

6. Anatomy of the equine foot and farriery

- Equine hoof structure and growth
- Horse shoeing, effect on performance, limb biomechanics, conformation and soundness

Practical Component

There is an obligatory **5 day Residential School** at Leahurst

Assessment

- **Practical Test** - At the end of the residential school (5%)
- **Short Answer Questions** - At the end of study units 1-5 (45%)
- **Journal Critique** - You will be assigned a study unit and topic in which you will have to participate in journal club by providing a journal article and a summary of its applicability to practice/evidence based medicine (10%)
- **Discussions** - Discussions occur at anytime during the nominated week/study unit (10%)
- **Essay** - 2000 word essay due at the end of the module (30%)

VETS772 Principles of Veterinary Physiotherapy & Approach to the Animal Patient

Value: 20 credits

Notional Study Hours: 200

Aims of Module

The aim of this module is to develop critical awareness of the legislation that frames animal therapy and develop a comprehensive understanding of the assessment and therapy of animals including emphasis on the importance of good verbal and written communication.

Learning Outcomes

At the end of this module, candidates should be able to:

1. demonstrate an in depth understanding of the legal, professional and ethical implications of veterinary physiotherapy practice;
2. demonstrate a systematic understanding of the importance of liaison with veterinarians, veterinary nurses and other paraprofessionals;
3. demonstrate the ability to communicate at many different levels and change the type of terminology used to accommodate different audiences;
4. demonstrate the ability to critically evaluate the scientific literature relating to their area of work, a comprehensive understanding of the research process and the implications for clinical practice;
5. demonstrate the ability to apply clinical reasoning to issues through independent thought and informed judgement;
6. demonstrate an in depth understanding of normal and problem behaviours of commonly treated domestic animals and a critical awareness of how animal behaviour is modified by pain;
7. demonstrate the ability to undertake a physiotherapy assessment of both large and small animals and to establish treatment goals based on the critical evaluation of assessment findings.

Module Structure

1. Law and professional ethics in the Veterinary and Physiotherapy Professions

Relevant legislation for the Veterinary Physiotherapist including professional, welfare, transport, medicines and performance animal regulations

2. Communication Skills

- Interaction with the members of the veterinary physiotherapy team
- Clinical record keeping and report writing

3. Evidence Based Practice

- Clinical reasoning
- Evidence based medicine
- Critical evaluation of the literature
- Keeping up to date in clinical professional physiotherapy practice

4. Physiotherapy assessment of the animal Patient

- Safe handling and approach to the animal patient
- Normal and problem behaviours in animals
- Behaviour and pain in animals
- History taking and signalment
- Assessment of static and dynamic conformation
- Palpation of soft tissues and determination of normal and abnormal findings
- Range of motion of joints (spinal and peripheral)
- Reflexes and stretching

Practical Component

There is an obligatory **5 day Residential School** at Leahurst

Assessment

- **Practical Test** - At the end of the residential school (10%)
- **Short Answer Questions** - At the end of study units 1-4 (20%)
- **Journal Critique** - You will be assigned a study unit and topic in which you will have to participate in journal club by providing a journal article and a summary of its applicability to practice/evidence based medicine (10%)
- **Discussions** - Discussions occur at anytime during the nominated week/study unit (10%)
- **Case based Essays** – 2 x 1500 word case based essays due at the end of the module (50%)

VETS773 Orthopaedics of the Common Domestic Species for the Veterinary Physiotherapist

Value: 20 credits
Notional Study Hours: 200

Aims of Module

The aim of this module is to develop an in depth understanding of a range of orthopaedic and musculoskeletal conditions that affect the common domestic species.

Learning Outcomes

By the end of this module, candidates will be able to:

1. demonstrate a comprehensive understanding of the musculoskeletal demands of working pets and athletic animals;
2. demonstrate an in depth understanding of the veterinary approach of diagnosing lameness in animals;
3. demonstrate a systematic understanding of problems associated with osseous, joint, tendon and ligament structures due to developmental disorders, injury/trauma and degenerative disorders and identify appropriate physiotherapy rehabilitation options;
4. demonstrate a comprehensive understanding of degenerative joint disease, conservative and surgical treatment approaches and rehabilitation;
5. demonstrate a systematic understanding of fracture biomechanics, healing and repair in the evaluation of management strategies including post-operative care and management of patients with fracture complications;
6. undertake critical evaluation of the scientific literature relating to the area of study.

Module Structure

1. Canine Orthopaedics

Approach to orthopaedic disorders

- The lame dog
- Components of the lameness examination
- Examination at rest and during movement
- Manipulative tests
- Diagnostic imaging

Orthopaedic diseases and disorders (developmental, injury/trauma, degenerative)

- Bone
- Tendon and ligaments
- Joints

Selected orthopaedic disorders

- Forelimb
- Hind limb
- The vertebral column/back
- Developmental disorders

Fractures

- Classification of fractures
- Fracture healing
- Fracture treatment
- Biomechanics of bone and fractures
- Biomechanics of fracture fixation
- Internal fracture fixation techniques
- External coaptation and bandaging
- Surgical management prior to and after maturity
- Post operative care

2. Equine orthopaedics

Common nomenclature, conformational and clinical terms and definitions

Approach to orthopaedic disorders

- The lame horse
- Components of the lameness examination
- Examination at rest and during movement
- Manipulative tests
- Diagnostic analgesia: Nerves and joints
- Diagnostic imaging

Orthopaedic diseases and disorders (developmental, injury/trauma, degenerative)

- Bone
- Tendon and ligaments
- Joints

Selected orthopaedic disorders

- Forelimb
- Hind limb
- The vertebral column/back
- Specific considerations in the foal

Practical Component

You are expected to arrange an informal 5 days of Veterinary Hospital Placements during the module. You may attend more than one Veterinary Hospital during this time. Placements will be assessed on a pass/fail basis.

Assessment

- **Veterinary Hospital Placement** - students are required to pass their Veterinary Hospital Placement (pass/fail)
- **Short Answer Questions** - At the end of study units 1-2 (30%)

- **Journal Critique** - You will be assigned a study unit and topic in which you will have to participate in journal club by providing a journal article and a summary of its applicability to practice/evidence based medicine (10%).
- **Discussions** - Discussions occur at anytime during the nominated week/study unit (10%)
- **Essays** - 2 x 1500 word essays due at the end of study units 1-2 (50%)

VETS774 Veterinary Physiotherapy Practice

Value: 20 credits
Notional Study Hours: 200

Aims of Module

The aim of this module is to enable physiotherapists to critically evaluate and translate their knowledge and understanding of human physiotherapy practice to that of animal patients, facilitating an in depth understanding of the physiotherapist and their practice in context of the veterinary multidisciplinary team.

Learning Outcomes

By the end of this module, candidates will be able to:

1. demonstrate a critical awareness of the functional effects of primary dysfunction on the entire musculoskeletal system;
2. demonstrate an in depth understanding of the principles of clinical reasoning in the development of a problem list, short/long term treatment plans and goals appropriate to a condition, incorporating information from the veterinary and physiotherapy assessment;
3. demonstrate a comprehensive understanding of the theoretical basis of individual manual, physical, electro-, hydro- and exercise therapy techniques and critical awareness of the optimum time for their application as well as skills in their application to animals;
4. demonstrate critical evaluation of the scientific literature relating to the area of study.

Module Structure

1. Manual Therapies

The safe and effective application of a range of manual modalities (soft tissue massage, trigger point therapy, myofascial release) in the physiotherapy management of pain and musculoskeletal conditions in animals including theory and understanding of the different physiological effects, evaluation of effects and progression/regression of treatment, knowledge of safety precautions and contra-indications

2. Physical (Hot and Cold) Therapies

The safe and effective application of a hot and cold therapy in the physiotherapy management of pain and musculoskeletal conditions in animals including theory and understanding of the different physiological effects, evaluation of effects and progression/regression of treatment, knowledge of safety precautions and contra-indications

3. Electrotherapy

The safe and effective application of a range of electrotherapy modalities (ultrasound, laser, TENS, muscle stimulation) in the physiotherapy management of pain and musculoskeletal conditions in animals including theory and understanding of the different physiological effects, evaluation of effects and progression/regression of treatment, knowledge of safety precautions and contra-indications

4. Hydrotherapy

The safe and effective application of hydrotherapy in the physiotherapy management of pain and musculoskeletal conditions in animals including theory and understanding of the different physiological effects, evaluation of effects and progression/regression of treatment, knowledge of safety precautions and contra-indications

5. Exercise Therapy

The safe and effective application of therapeutic exercise prescription in the physiotherapy management of pain and musculoskeletal conditions in animals including theory and understanding of the different physiological effects, evaluation of effects and progression/regression of treatment, knowledge of safety precautions and contra-indications

Practical Component

There is an obligatory **10 day Residential School** at Leahurst

Assessment

- **Short Answer Questions** - At the end of study units 1, 3 and 4 (30%)
- **Journal Critique** - You will be assigned a study unit and topic in which you will have to participate in journal club by providing a journal article and a summary of its applicability to practice/evidence based medicine (10%)
- **Discussions** - Discussions occur at anytime during the nominated week/study unit (10%)
- **Case Reports** - 2 x 1500 word case reports due at the end of study units 2 and 5 (50%)

VETS775 Neuromotor System in Performance and Disease

Value: 20 credits

Notional Study Hours: 200

Aims of Module

The aim of this module is to develop an in depth knowledge of the neuromotor system in performance and disease including adaptations to training, feeding for performance and diseases and disorders affecting the neuromotor system in animals.

Learning Outcomes

At the end of this module, candidates will be able to:

1. demonstrate an in depth understanding of the effects of different types of training on both the neuromotor and cardiopulmonary systems;
2. compare and contrast adaptation to training of the neuromotor versus the cardiovascular and pulmonary systems;
3. demonstrate a critical awareness of nutritional requirements for and nutritional disorders likely to affect performance horses and dogs;
4. demonstrate systematic understanding of diseases and disorders which may affect the nervous and muscular systems and identify appropriate physiotherapy rehabilitation options;
5. demonstrate in depth understanding of anti-inflammatory, sedative and muscle relaxant drugs used in animals and their potential to affect physiotherapy assessment and treatment;
6. demonstrate critical evaluation of the scientific literature relating to the area of study.

Module Structure

1. Performance

- Adaptation to training of muscles, bones
- Effects of different types of training on the musculoskeletal system

2. Nutrition

- Feeding for performance in the horse and dog
- Nutritional disorders in the horse and dog

3. Small Animal and Equine Neurology

- The neurological examination
- Common neurological conditions
- Rehabilitation options

4. Small Animal and Equine Myopathies

- Differentiate neurological and muscular disease
- Common myopathies in animals
- Physiotherapy treatment and rehabilitation options

5. Wound Healing, Inflammation and Pharmacology

- Inflammation and factors affecting wound healing in different animal species
- Drug effects and side effects relevant to the physiotherapist

Practical Component

You are expected to arrange an informal 5 days of Veterinary Hospital Placements during the module. You may attend more than one Veterinary Hospital during this time. Placements will be assessed on a pass/fail basis.

Assessment

- **Veterinary Hospital Placement** - students are required to pass their Veterinary Hospital Placement (pass/fail)
- **Short Answer Questions** - At the end of study units 3 and 5 (30%)
- **Journal Critique** - You will be assigned a study unit and topic in which you will have to participate in journal club by providing a journal article and a summary of its applicability to practice/evidence based medicine (10%)
- **Discussions** - Discussions occur at anytime during the nominated week/study unit (10%)
- **Essays** – 3 x 1000 word essays due at the end of study units 1, 2 and 4 (50%)

VETS776 Advanced Veterinary Physiotherapy Practice

Value: 20 credits
Notional Study Hours: 200

Aims of Module

The aim of this module is to enable the candidate to further develop, consolidate and critically appraise their clinical and theoretical veterinary physiotherapy skills and knowledge to be able to apply them in a professional manner in clinical practice.

Learning Outcomes

At the end of this module, candidates will be able to:

1. demonstrate in depth understanding and critical reflection in the principles of objective measurement, reassessment, and treatment progression relative to the animal's dysfunction;
2. critically appraise the theory, and assess the biomechanical contributions of the application of training aides, saddlery (tack) and the rider/handler in the onset, maintenance or resolution of equine/canine dysfunctions;
3. demonstrate a critical awareness of how the husbandry of an animal affects the onset and/or maintenance of musculoskeletal dysfunction;
4. critically evaluate, using principles of clinical reasoning, evidence based practice and an in depth understanding of the diseases and disorders involved, the use of advanced physiotherapeutic techniques in humans and demonstrate a systematic understanding and skill in their application to the treatment and rehabilitation of animals;
5. demonstrate critical evaluation of the scientific literature relating to the area of study;
6. critically reflect on veterinary physiotherapy current practice, identifying current problems and/or new insights into where veterinary physiotherapy could develop, incorporating a critical analysis of the veterinary or medical literature in the appropriate context to justify such developments;
7. demonstrate professionalism in veterinary physiotherapy practice, dealing with complex clinical problems both systematically and creatively, make sound judgements in the absence of complete data (clinical reasoning and evidence based practice), and communicate their conclusions clearly to specialist and non-specialist audiences.

Module Structure

1. Advanced Physiotherapy Techniques

- Neurological rehabilitation
- Respiratory physiotherapy
- The intensive care animal patient
- Cardiac rehabilitation

2. Husbandry of animals and musculoskeletal dysfunction

- The horse and rider interaction, including influence of tack
- The dog and handler interaction
- Training program design and over training

3. Professional Physiotherapy practice

- Avoiding “the revolving door”
- Working as a multidisciplinary team
- Selection and application of the correct treatment plan (clinical reasoning and EBM in practice)
- Communication as a professional

Practical Component

Students are required to complete their 20 days of Clinical Placements with Veterinary Physiotherapists by the end of this module and prior to the Practical Exam.

All students will also participate in a one hour exam which will cover the material contained within VETS771-VETS776 inclusive.

Students must pass the practical exam and clinical educator assessments to pass the module.

Assessment

- **Practical Examination** – At the end of the module (20%)
- **Clinical Educator Assessment** – on-going during placement and due prior to the practical exam (30%)
- **Case Reports** - 3 x 1000 words due at the end of study units 1-3 (50%)

VETS777 Research Project (MSc)

Value: 60 credits
Notional Study Hours: 600

In order to enrol on the research project, candidates will be required to submit a research proposal, which includes nomination of a supervisor and identification of the research facilities available for research. Approval of the proposal is required for a candidate to enrol on the module. The proposal is generally due 2 months prior to the commencement of the module (March each year).

Proposals will be assessed on their feasibility to be done and the availability of resources, including staff resources for supervision.

Aims of Module

The aim of this module is for candidates to develop research skills, review the literature around a specific area, undertake independent research, critically evaluate research findings, and implement research results in practice.

Learning Outcomes

At the end of this module candidates will be able to:

1. demonstrate a systematic understanding of the role of research in informing clinical practice and evidence based medicine;
2. evaluate critically current research and advanced scholarship and communicate this in the form of a written literature review;
3. demonstrate an in depth understanding the types of research design commonly used in clinical research and the indications for the use of each;
4. demonstrate a comprehensive knowledge of experimental data collection and analysis, including interpretation of their validity;
5. demonstrate the ability to communicate research findings in the form of a scientific report (scientific paper or dissertation) and an oral presentation detailing data and results obtained during the research project, and putting these findings into scientific context;
6. demonstrate initiative and personal responsibility as well as being able to manage time, work to deadlines, and prioritise workloads;
7. demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.

Method of Teaching

Projects are selected by students in consultation with potential supervisors and module co-ordinators. Supervisors will provide guidance and mentorship, ensuring the project is approved by the appropriate ethics committee if required, and maintaining communication with the candidate on a weekly basis.

Candidates are supported with an online series of tutorials and materials, including access to the University of Liverpool's online library.

A small amount of money (max. £500) will be available to your supervisor to cover costs associated with running the project e.g. consumables, travel (for you or them).

Module Structure

This module is divided into 3 units of work starting with basic research methodology and literature review prior to the research project.

1. Research techniques and evidence based medicine (150 hours)

- data management and spreadsheet design
- research in clinical practice - evidence based medicine
- principles of animal research and ethics
- introduction to research design
- validity and reliability in research instruments
- survey research
- statistical analysis

2. Literature review (200 hours)

- how to structure a scientific review of the literature

3. Project Work (250 hours)

Assessment

- **Short Answer Questions** – At the end of study unit 1 (5%)
- **Literature Review** – 2000 words due at the end of study unit 2 (20%)
- **Research Dissertation or Scientific Manuscript** – 5000 words due at the end of the module (60%)
- **Project Talk** - At the end of the module (15%)