University College Dublin
National University of Ireland, Dublin

Physiotherapy

Session 2002/2003

Contents

Degree of Bachelor of Science (Physiotherapy) (BSc) (Physio)

The full-time degree course leads to the examination for the Degree of Bachelor of Science (Physiotherapy) of the National University of Ireland and to recognition by the Irish Society of Chartered Physiotherapists and the Chartered Society of Physiotherapy, London.

The programme of study for the degree extends over a period of four years. Courses will be given in University College Dublin and in the School of Physiotherapy, Mater Misericordiae Hospital. While working in a hospital, students are subject to the rules of the hospital.

Admission Requirements

Admission to the course is based on the points system for students taking Leaving Certificate examinations. The points score of an applicant will be calculated on the six best subjects in a single year. It is anticipated that fifty-six places will be available in the first year class in session 2002/2003.

Students who are offered a place must pass a medical examination for physical fitness. They will be sent a medical form for completion by their own doctor. On entry, they must be prepared to undergo a Mantoux test for tuberculosis.

Dates of Terms

The 2002/2003 session is as follows:

Michaelmas Term:	Monday, 16 September 2002 – Friday, 06 December 2002
(First Semester)	
Hilary and Trinity Terms:	Monday, 06 January 2003 – Friday, 01 March 2003
(Second Semester)	Monday, 24 March 2003 – Thursday, 17 April 2003

Examinations

First University Examination in Physiotherapy
The courses of instruction and subjects of examination are:

EXPH	1605	Experimental Physics
CHEM	1605	Chemistry
BIOC	1601	Biochemistry
ANAT	1002	Anatomy
PHYS	1002	Physiology
PSY	1701	Psychology
PHTY	1001	Manipulative Procedures
PHTY	1002	Therapeutic Movement
HCIN	1002	Introduction to Healthcare Informatics

The examination is held in the Summer and Autumn. Students who fail to complete the First University Examination in Physiotherapy in the Autumn are required to re-attend the respective courses in the following session before re-entering for the examination.

The First University Examination in Physiotherapy must be passed within two years of the date of entering the course.

Second University Examination in Physiotherapy
The courses of instruction and subjects of examination are:

ANAT	2002	Anatomy
PHYS	2002	Physiology
PHTY	2001	Manipulative Procedures
PHTY	2002	Therapeutic Movement
PHTY	2003	Biomechanics and Kinesiology
PHTY	2004	Applied Physics and Electrotherapy
PHTY	2005	Practice of Physiotherapy

The examination is held in the Summer and Autumn. Students who fail to complete the Second University Examination in Physiotherapy in the Autumn are required to re-attend the respective courses in the following session before re-entering for the examination.

The Second University Examination in Physiotherapy must be passed within two years of the date of passing the First University Examination in Physiotherapy.

Third University Examination in Physiotherapy
The courses of instruction and subjects of examination are:

PHTY	3005	Practice of Physiotherapy
SOC	3701	Sociology
PSY	3701	Psychology
PHME	3001	Epidemiology, Statistics and Research Methods
PHTY	3001	Manipulative Procedures
PHTY	3002	Therapeutic Movement
PHTY	3003	Biomechanics and Kinesiology
PHTY	3004	Applied Physics and Electrotherapy

The examination is held in the Summer and Autumn. Students who fail to complete the Third University Examination in Physiotherapy in the Autumn are required to re-attend the respective courses in the following session before re-entering for the examination.

Clinical Attendance
The students' clinical performance will be evaluated by two in-course assessments during third year.

Fourth University Examination in Physiotherapy
The courses of instruction and subjects of examination are:

PHTY	4004	Practice of Physiotherapy
PSY	4001	Psychiatry
FMED	4002	Legal Medicine
BMGT	3046	Management.

There is a minor dissertation. Examinations are held in Summer and Autumn. The examination in Legal Medicine is held at the end of the First Semester. The Bachelor of Science (Physiotherapy) Degree may be awarded with honours.

Continuous Assessment
Physiotherapy skills are tested by continuous assessment in First, Second, Third and Fourth Years**.**

Clinical Attendance
The attendance of students at clinical courses in the general and specialist hospitals affiliated to the University must be certified before proceeding to the Third and Fourth University Examinations in Physiotherapy. The students' clinical performance will be evaluated by two in-course assessments during Fourth year.

Syllabus of Courses

First Year

Anatomy (ANAT 1002)
Two lectures, two hours practical/dissection and one applied anatomy/functional anatomy seminar per week during the first and second semesters.

The course in Anatomy is continuous over the first and second years. It is designed to provide students with the working knowledge of the structure of the human body which is an essential foundation for their clinical studies. Studies in the first year are concerned with the topographical and functional anatomy of the limbs and thorax. Particular attention is paid to the muscles, bones and joints of the regions.

Course:

1. Osteology and Arthrology. Myology.
2. Anatomy of the limbs and thorax.
3. Surface and functional anatomy on the living model.
4. Anatomy of the abdomen and pelvis.

Experimental Physics (EXPH 1605)
Lectures: Two or three lectures per week during the first and second semesters..
Lectures:

Mechanics
Atomic Theory of Matter
Wave Phenomena
Light and Sound
Thermal Physics
Electricity and Magnetism
Change of State

Chemistry (CHEM 1605)
Lectures: Eighteen hours during the first semester.
Introduction to fundamental concepts of molecular structure and of chemical reactivity.

Brief overview of the common functional groups, including chemical and physical properties, and examples of compounds which are important in nature and in medicine. Introduction to biomolecules, including lipids, carbohydrates and amino acids.

Biochemistry (BIOC 1601)

Lectures: Twenty hours during the first and second semesters.

1. Cell Biology and Biochemistry. The building blocks of the cell – proteins, lipids and carbohydrates. Structure and function of enzymes. Structure and function of biological membranes.
2. DNA and RNA, molecules of heredity. Heredity and the cell. The structure of nucleic acids. RNA directed protein synthesis. Hereditary diseases and genetic engineering.
3. Generation and storage of metabolic energy. Glycolysis. Glycogen, Gluconeogenesis and Glucose homeostasis. Storage and mobilization of lipids. Oxidation of fatty acids.
4. Metabolism of nitrogenous compounds; aspects of nutrition. Synthesis and catabolism of amino acids. Nitrogen balance and protein requirements. Formation of urea. Vitamins.

Psychology (PSY 1701)

Lectures: One hour per week during the first or second semester.

1. General introduction to psychology and the history of psychology (particularly Behaviourism and Gestalt psychology).
2. Learning, sensation and perception, motivation.
3. Cognitive psychology, attention, memory and mental imagery.
4. Theories of personality (psychoanalysts, humanists, trait approaches to personality).
5. Life span development (psycho-social theories of Erikson and Levinson).

Physiology (PHYS 1002)

Lectures: One lecture and one practical class each week during the first and second semesters.

The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body. The major topics covered include the following: the cell; primary tissue; connective tissue; skin; muscle; nervous tissue; blood; lymphoid tissues.

Laboratory classes are concerned with the microscopic structure of tissues, organs and systems and particular emphasis is placed on the relationship of structure and function.

Manipulative Procedures (PHTY 1001)

Lectures/Practicals: Two hours per week during the first and second semesters.

Performance of basic manipulations, modification of techniques for specific effects. Physical and physiological effects of manipulative procedures. Introduction to the assessment and treatment of musculoskeletal disorders. Assessment of upper limb musculoskeletal disorders and treatment using mobilisation techniques and deep transverse frictions.

Therapeutic Movement (PHTY 1002)

Lectures/Practicals/Tutorials: One hour per week during the first and second semesters.

Posture

Human movement analysis

Early mobilisation of joints

Muscle strengthening and endurance – Part I

Relaxation.

Principles of teaching exercise

Introduction to Healthcare Informatics (HCIN 1002)

Lectures: Twenty-two in the first semester; associated practicals.

Computing skills, word processing, spreadsheets, basic data handling, data storage; PC, floppy, optic, server; library, databases, networks, Internet/Email, electronic texts, graphics, presentation systems; data acquisition; expert systems; diagnostic treatment; hospital information systems, general practice management systems, lab systems; security, data protection, system failure; technology infrastructure, communication methods.

Second Year

Anatomy (ANAT 2002)
Two lectures, two hours practical/dissection class and one applied/functional anatomy seminar per week during the first and second semester.

The course continues from the first year with the emphasis again being placed on functional aspects of the subject. The abdomen, pelvis, perineum, head and neck and central nervous system (CNS) are studied with particular reference to topics of importance to physiotherapists. The study of the CNS includes detailed consideration of the control of motor function.

Physiology (PHYS 2002)
Lectures: Two lectures and one practical class each week during the first and second semesters.

The course in Physiology over the second year is designed to continue on from the course in first year giving the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body. The major topics covered include the following: respiration; blood vessels; circulation; cardiac cycle; systemic circulation; sensory receptors; special senses; motor unit; spinal cord; control of movement; hypothalamic functions; gastro-intestinal tract; kidneys; uterus; urinary tract; pregnancy; endocrine system.

Practical classes in the first semester include respiratory function tests, electromyography and exercise. Histology classes in the second semester are concerned with the microscopic structure of tissues; organs and systems and particular emphasis is placed on the relationship of structure and function.

Practice of Physiotherapy (PHTY 2005)
Lectures: Four lectures per week in the first semester; five lectures per week in the second semester.

Definition of aims, objectives and scope of practice in musculoskeletal disorders. The relationship between pathological changes and clinical signs in a range of disorders to include trauma, orthopaedics, deformities, rheumatology. Preparation for clinical practice, including interviewing patients, identifying problems, taking a reasoned approach to treatment planning. Respiratory and cardiovascular care in routine surgical interventions. Ethical guidelines for clinical practice. Instruments for assessment of health status.

Biomechanics and Kinesiology (PHTY 2003)
Lectures/Practicals/Tutorials: Two hours per week during the first and second semesters.

1. Kinematic variables involved in the description of movement such as linear and angular displacements, velocities and accelerations. Relative and absolute spatial reference systems.
2. Kinetics: Forces that cause and adjust movement such as muscle activity, gravity, inertia, ground reaction forces.
3. Anthropometry: Body segment lengths, centres of gravity of body segments; location of mass centres and centres of rotation of joints; angle of pull of muscles.
4. Biomechanics of equilibrium in standing and sequence leading to its attainment.
5. Work, kinetic and potential energy.
6. Muscle and joint biomechanics: Mechanical characteristics of muscle, both active and passive. Role of articulating surfaces in stabilising joints and limiting ranges of movement.
7. Recording systems in current use for measurement of joint range and muscle strength.
8. Observation, description, measurement, analysis and assessment of normal locomotion patterns in man.

Therapeutic Movement (PHTY 2002)
Lectures/Tutorials/Practicals: Two hours per week during the first and second semesters.

Gait training and mobility aids.

Muscle strengthening and endurance – Part II.

Back care and lifting.

Cardiovascular training.

Traction.

Hydrotherapy.

Neurodevelopmental techniques.

Applied Physics and Electrotherapy (PHTY 2004)
Lectures/Practicals/Tutorials: Two hours per week during the first and second semesters.
Thermal energy. Infra-red radiation, wax, hot packs, short wave diathermy. Muscle stimulating currents. Ultra-sound. Pulsed electromagnetic energy. Application of techniques: Infra-red radiation, wax, hot packs, short wave diathermy. Electrical stimulation of muscle. Therapeutic ultrasound. Pulsed electromagnetic energy.

Manipulative Procedures (PHTY 2001)
Lectures/Practicals/Tutorials: One hour per week during the first and second semesters.
Assessment of musculoskeletal disorders of the lower limb. Treatment of lower limb musculoskeletal disorders using manual therapy techniques.

Postural drainage, percussion, breathing exercises, active cycle of breathing techniques, suction, IPPR, CPAP, nebulizers, humidification, auscultation and examination.

Basic Medical Procedures (including First Aid)
Practicals: Nine hours during the first semester.

Third Year

Practice of Physiotherapy (PHTY 3005)
Ninety four hours during the first and second semesters.
Women's health, respiratory care and cardio-vascular care. Dermatology, amputations. Neurology, neurosurgery and neuropaediatrics. Peripheral nerve injuries. Burns, geriatrics. Introduction to palliative care.

Biomechanics and Kinesiology (PHTY 3003)
Lectures/Practicals/Tutorials: Thirty hours during the first and second semesters.

1. Biomechanics of loading the vertebral column.
2. Validity and reliability of measurement.
3. Analysis of deviations from normal locomotion patterns in various pathological conditions.
4. Analysis of head and upper limb movements and prehensile function of hand.
5. Analysis of occupational and sporting activities.

The courses in Biomechanics and Kinesiology and in Therapeutic Movement are closely related to each other and to the clinical experience which the student obtains during the period of the second year and continuing in the third and fourth years.

Therapeutic Movement (PHTY 3002)
Lectures/Tutorials/Practicals: One hour per week during the first and second semesters.
Balance retraining

Age Related Exercise Therapy

Neurological Exercise Therapy

Muscle Strengthening and Endurance – Part III

Exercise Programme Planning

Applied Physics and Electrotherapy (PHTY 3004)
Lectures/Practicals/Tutorials: Two hours per week during the first and second semesters.
Cryotherapy. Ultra-violet radiation. Interferential currents, transcutaneous electrical nerve stimulation. Principles of electro-diagnosis. Laser. Biofeedback. Contemporary trends in physiotherapy. Wound management.

Manipulative Procedures (PHTY 3001)
Fifteen hours during each of the first and second semesters.
Assessment and treatment of neuromusculoskeletal disorders of the cervical, thoracic and lumbar spine and the sacro-iliac joints.

Sociology (SOC 3701)
Lectures: Twelve during the first or second semester.

Psychology (PSY 3701)

Lectures: One hour per week during the first semester.

Social psychology attitudes, attribution theory. Pain, stress and coping. Social groups – group structure – conformity, obedience, relationships (social support). Application of social psychology and health (behaviour, bereavement). Therapies: Psychotherapy, behavioural therapy, cognitive restructuring (stress inoculation training).

Epidemiology, Statistics and Research Methods (PHME 3001)

Epidemiology

Lectures: One hour per week during the first semester.

Lectures to include:- Natural history of disease and prevention. Concepts and models. Descriptive and analytical epidemiology. Epidemiology of major chronic diseases.

Statistics

Lectures: One hour per week during the first or second semester.

Statistics and vital statistics.

Research Methodology

Lectures: One hour per week during the second semester.

Lectures to include:- Design and analysis in biomedical research. Prospective and retrospective studies. Controlled clinical trials and ethics thereof. Clinical measurement, observer, variation, sensitivity and specificity. Computers in medicine.

Clinical Education – Treatment of Patients

A minimum of 1,000 hours is spent during training treating patients. This commences at the end of the second semester of the second year but the greater proportion of the clinical experience occurs during the third and fourth years. A block of clinical work is done at the end of the second and third academic years during the Summer vacation.

Clinical Attendance

The attendance of students at clinical courses in the general and specialist hospitals affiliated to the University must be certified before proceeding to the Third University Examination in Physiotherapy.

Fourth Year

Psychiatry (PSY 4001)
Lectures and Clinical Presentations: Sixteen hours during the first semester or second semester.
Adult and child psychiatry – classification. Chronic illness. Dying and bereavement, psychiatric disorders and treatments and response to physical illness. Personality disorders. Drug abuse, psychiatric disorders in childhood. Effects of hospitalisation. Assessment. Clinical presentations.

Practice of Physiotherapy (PHTY 4004)
Lectures, seminars and clinical presentations: 110 hours during the first and second semesters.
Loss and grief in physiotherapy practice. Rehabilitation for survivors of torture. Physiotherapeutic management of pain. Performance related and health related fitness including sports injuries and fitness evaluation. Sports medicine. Advanced studies in gerontology. Physiotherapy in industry. Clinical Reasoning in Manual Therapy. Advanced Mobilising Techniques. Clinical presentation of patients

Legal Medicine (FMED 4002)
Ten lectures and two seminars during the first semester.
The course is particularly concerned with the areas of medical law and ethics as applied to physiotherapy. The aim is to give the student physiotherapist a working knowledge of medico-legal matters pertinent to present-day and future clinical practice, including the legal and ethical obligations of the practising physiotherapist.

Topics covered include: Introduction to medical law and ethics; basic legal concepts and the Court system; physiotherapists' legislation and registration in Ireland and the European Union; legal framework for the physiotherapist-patient relationship; basic concepts in professional negligence; patient consent to diagnosis, investigation and treatment; communications and preventive medical law; medical records and confidentiality; data protection legislation; structure and functions of the Irish Society of Chartered Physiotherapists; codes of ethics, physiotherapists' code of conduct; medico-legal reports, expert witness and the Court appearance; contracts of employment, trade union law and partnerships in private practice.

Orthotics (PHTY 4005)
Lectures/Tutorials/Practicals: Ten hours during the second semester.
Common orthotic devices used in the upper and lower limbs. Normal biomechanics and pathomechanics of the foot and ankle. Use of functional foot orthoses in the treatment of symptoms caused by the common foot deformities. Principles and practice of taping techniques.

Management (BMGT 3046)
Lectures/Seminars/Project: Twelve hours during the second semester.
History of the health service, Department of Health requirements, review of health economics. The management and business world – planning, organisation, controlling, leadership, communication skills, budgeting.

Clinical Attendance
The attendance of students at clinical courses in the general and specialist hospitals affiliated to the University must be certified before proceeding to the Fourth University Examination in Physiotherapy.

Minor Dissertation (PHTY 4100)
Each candidate will have to present a minor dissertation.

Postgraduate Programmes

Higher Diploma in Healthcare (Acupuncture)

Programme Code MDHDP0037

The Higher Diploma in Healthcare (Acupuncture) is a 2-year part-time postgraduate programme designed to assist physiotherapists, particularly those working in the areas of musculo-skeletal and sports physiotherapy, to employ acupuncture as an adjunct to other forms of treatment. Candidates who have obtained a degree of BSc (Physiotherapy) or the MB, BCh, BAO of the National University of Ireland, with a minimum of two years post-qualification experience, or other healthcare personnel and professionals with a basic qualification in one of the health sciences or who hold such other qualification as may be approved by the Faculty of Medicine shall be eligible to enter for the Higher Diploma in Healthcare (Acupuncture).

Course Structure

The course provides training in Acupuncture for physiotherapists, medical practitioners and other health professionals working in the area of musculo-skeletal disorders. The skills learned provide the basis for safe and effective treatment within the healthcare system. The aim is that the knowledge and skills required can be applied to the improvement of patient care and to healthcare delivery in general. The course will be part-time over two years and will consist of lectures, tutorials and practical/laboratory sessions. The syllabus of courses offered in each year of study will include:

Year 1

Theory of Acupuncture, Study of Point Finding, Diagnosis, Case Studies.

Year 2

Scientific Theory, Ear Acupuncture, Meridial Networks, Disease Syndromes.

Examinations

The examinations for the Higher Diploma in Healthcare (Acupuncture) will consist of the following:

1. A written examination at the end of Years 1 and 2

2. A clinical and oral examination

3. Three case studies

Candidates must pass the Year 1 written examination before commencing Year 2.

Certificate in Outcome Assessment in Motor Disability (Web Based Distance Learning)

The certificate in Motor Disability is a one-year part-time postgraduate programme. The course is delivered entirely on the Web.

The course provides training in valid standardised and reliable motor disability testing for healthcare professionals to aid evaluation and communication of the effectiveness of treatment. It consists of standardised and validated measures to be used before and after treatment. The objective is to encourage transparency in the communication of the effects of treatment in patients with motor disability. The course has a total student workload of 90 hours and is divided into 10 units.

Entry Requirements: The course is open to physiotherapists, doctors, bioengineers and nurses and to other healthcare personnel who hold such other qualifications as may be approved by the Medical Faculty.

Examination by multiple choice questionnaire, by essay and the clinical laboratory record will take place on the web at the end of each unit.

Degree of Master of Science (MSc)

Candidates who have obtained the Degree of BSc (Physiotherapy) from the National University of Ireland, or other primary degree or other qualification deemed equivalent by the Faculty of Medicine, and who wish to obtain further postgraduate training in their chosen branch of allied subjects related to Medicine, with particular reference to the academic and research aspects, shall be eligible to enter for the Degree of MSc. The Degree may be obtained by thesis (Mode I) or by examination (Mode II).

MSc Degree by Thesis (Mode I)

Candidates must attend for at least three terms and carry out research under the direction of the professor (or university lecturer) in the subject concerned. The thesis presented by the candidate is to embody the results of this research. The Faculty may approve of the work being carried out elsewhere under the direction of the professor (or university lecturer) in the subject concerned.

Candidates may be required to pass an oral examination in the subject matter of the thesis if the examiners so decide. Three copies of the thesis must be lodged with the Supervisor of Examinations, University College Dublin, on or before the date fixed by the university.

MSc Degree by Examination (Mode II)

Programme Codes MDMXF0027 and MDMXP0009
The course will be full-time, covering twelve months, or on a part-time basis over at least two years. It will be divided into Section A and Section B. Section A will be aimed at that aspect of Medicine, or allied subjects related to Medicine, and will be directed by the relevant department. The student will follow the teaching programme made available, including lecture demonstrations in research techniques and will take part in the teaching of undergraduate students. Section B will consist of a research project and thesis. The examination for Section A may be held in June or September.

Degree of Master of Science (MSc) (Sports Physiotherapy)

Programme Code MDMXP007
This is a part-time modular postgraduate course held over two years. The course is suitable both for those practising general physiotherapy and for those with an interest in Sports Physiotherapy as a full-time career.

Applicants must hold the Degree of BSc (Physiotherapy) (NUI) or other primary degree or other qualification deemed equivalent by the Faculty of Medicine, with two years' post qualification experience.

The aim of the course is to provide detailed training in the various disciplines related to Sports Physiotherapy.

There will be four 75 hour modules (i.e. 300 hours). Each module will run over 15 weeks and will involve one half-day (4 hours) per week and occasional Saturday sessions. Each candidate will be expected to attach themselves to a sporting entity of their choice and as part of their dissertation to present a log of their involvement (in an appendix) with relevant case studies and statistical analysis in the body of the work to support their dissertation topic.

Topics covered:
Exercise Physiology, Functional Human Anatomy, Human Biomechanics, Sports Nutrition, Sports Psychology, Medical Problems, Strapping and Taping Techniques, Informatics, Statistics, Research Methods, "Alternative Medicine", Injuries, Special Groups, Specific Sports, Manipulative Procedures (Manual Therapy).

Examinations:
Examination by in-course assessment during the first and second year and by written and practical/oral exams in the second year (Summer). The MSc requires completion of a minor dissertation.

The course will be jointly administered by the UCD School of Physiotherapy and the University Industry Programme.

Degree of Doctor of Philosophy (PhD)

Doctoral studies may also be undertaken at the School of Physiotherapy.