



Specialist Diploma in FORM & FUNCTION OF THE HUMAN BODY

Duration: 1 year part-time

- > Curriculum focused on human anatomy, physiology, cell biology, immunology and disease states and possible interventions
- > Delivery via blended learning teaching methodologies
- > Cross-skilling for career specialisation or change, or for personal interest
- > Minor award at Degree level (NFQ level 8)



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▶ ENTRY REQUIREMENTS

- > Applicants must be in receipt of the Diploma in Science & Technology Studies or a related Diploma or higher qualification. Applicants may use experience in addition to academic qualifications to demonstrate that they satisfy the course prerequisites.

▶ WHAT TYPE OF COURSE IS IT?

- > This one-year, part-time Diploma aims to develop specialist knowledge of the human body and common human diseases, and the science behind a range of therapeutic interventions, biomaterials and medical device design. The qualification is considered a minor award at Degree level.

The programme is delivered by blended learning, participants receive learning materials in both online and in hard copy format for each module. Materials are specifically designed for independent study and are supplemented by supporting online learning resources where appropriate. The course requires attendance at tutorials in NUI Galway once every four weeks, or approximately ten Saturdays, from September to June. Between campus visits you will interact with tutors and peers via an online learning system.



HOW WILL I BENEFIT?

The course is intended for those who wish to deepen their knowledge of the human body out of personal interest or for career advancement or career change. It will allow medical device operatives and technicians to advance their biomedical knowledge. It will be beneficial to those from a science or engineering background who wish to transfer existing skills and develop specialist knowledge in order to move into the medical devices sector. It will also be of benefit to current medical device engineers by providing insight into the ultimate environment of their products.

If graduates so wish, they can progress to the B.Sc. in Science & Technology Studies (NQF level 8) with credit for their studies. In this case they will be exempt from one elective stream in the Degree cycle.

CURRICULUM

This Specialist Diploma consists of four inter-related taught modules and a project, each worth 6 ECTS, giving a total of 30 ECTS.

The four taught modules are:

- > Cell Biology
- > Human Anatomy & Physiology
- > Immunology & Human Therapeutics
- > Biocompatibility & Device Design

The module contents are presented at the end of this document. The project topic is chosen by the participant in consultation with their supervisor.

LEARNING OBJECTIVES

On completion of the course participants should have:

- > Specialised knowledge of human anatomy, physiology, cell biology, immunology, biocompatibility and disease states
- > An appreciation of the science behind a range of therapeutic interventions
- > Technical knowledge of biomaterials and various medical devices
- > Developed various transferable and soft skills

ASSESSMENT

Assessment of the taught modules is through continuous assignments, practical laboratory sessions and written examinations. Exams take place at the end of each semester. The project is assessed through staged delivery of a project report. The award mark is based on an average result of all five modules.

COURSE STRUCTURE

The course is offered over one academic year (September to June) on a part-time basis. Two taught modules are completed each semester (September to December and January to June) while the project is completed over the academic year.

FEES

The fees for the course are €1,900 for EU students and €2,400 for non-EU students.

This fee includes:

- > Registration
- > Tuition fees
- > Course materials
- > Examinations and assessments

HOW DO I APPLY?

Applications should be made online at www.nuigalway.ie/apply

CONTACT

Further information is available from:

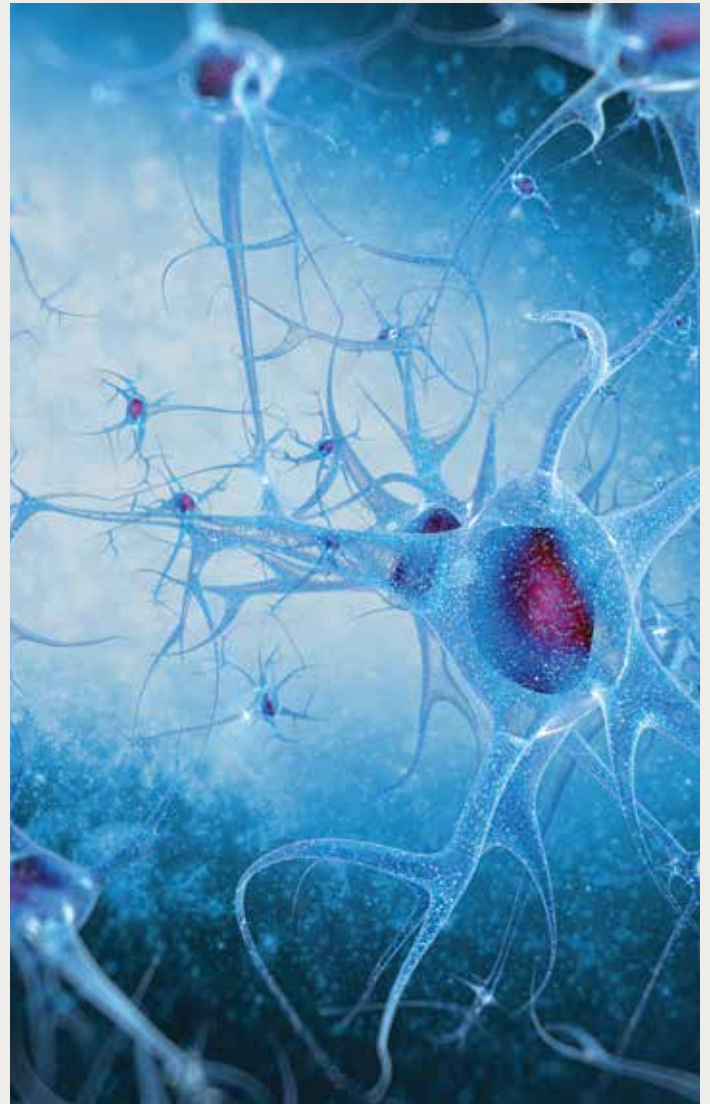
Niamh McHugh
Centre for Adult Learning and
Professional Development,
Nuns' Island,
NUI Galway,
091 495845
niamh.mchugh@nuigalway.ie

www.aua.ie

MODULE CONTENTS

CELL BIOLOGY

- UNIT 1 ANATOMY OF CELLS I
- UNIT 2 ANATOMY OF CELLS II
- UNIT 3 PHYSIOLOGY OF CELLS I
- UNIT 4 PHYSIOLOGY OF CELLS II
- UNIT 5 THE NUCLEUS OF THE CELL
- UNIT 6 CELL GROWTH
- UNIT 7 CELL DEATH
- UNIT 8 CELL GROWTH AND DIFFERENTIATION
- UNIT 9 TISSUES I
- UNIT 10 TISSUES II
- UNIT 11 CANCER CELLS
- UNIT 12 CELL CULTURE I
- UNIT 13 CELL CULTURE II
- UNIT 14 BIOCOMPATIBILITY
- UNIT 15 BIOCOMPATIBILITY: CYTOTOXICITY
- UNIT 16 BIOCOMPATIBILITY: GENOTOXICITY



IMMUNOLOGY & HUMAN THERAPEUTICS

- UNIT 1 BASIC COMPONENTS OF IMMUNITY: STRUCTURE AND FUNCTION
- UNIT 2 IMMUNITY TO INFECTION
- UNIT 3 IMMUNODEFICIENCY
- UNIT 4 ANAPHYLAXIS AND ALLERGY
- UNIT 5 AUTOIMMUNITY
- UNIT 6 TRANSPLANTATION
- UNIT 7 NEUROIMMUNOLOGY
- UNIT 8 IMMUNE MANIPULATION
- UNIT 9 IMMUNISATION AND INFECTION
- UNIT 10 ANTIBODIES
- UNIT 11 MONOCLONAL ANTIBODIES IN MEDICINE
- UNIT 12 ANTIBODIES TO CYTOKINES
- UNIT 13 ANTIBODIES AS THERAPEUTIC AGENTS
- UNIT 14 OTHER IMMUNOTHERAPIES

HUMAN ANATOMY & PHYSIOLOGY

- UNIT 1 THE HUMAN BODY
- UNIT 2 THE INTEGUMENTARY SYSTEM
- UNIT 3 THE SKELETAL SYSTEM
- UNIT 4 THE MUSCULAR SYSTEM
- UNIT 5 THE NERVOUS SYSTEM
- UNIT 6 THE ENDOCRINE SYSTEM
- UNIT 7 THE CARDIOVASCULAR SYSTEM
- UNIT 8 THE HAEMATOLOGICAL SYSTEM
- UNIT 9 THE LYMPHATIC SYSTEM
- UNIT 10 THE RESPIRATORY SYSTEM
- UNIT 11 THE DIGESTIVE SYSTEM
- UNIT 12 THE URINARY SYSTEM
- UNIT 13 THE REPRODUCTIVE SYSTEM
- UNIT 14 PREGNANCY
- UNIT 15 THE SENSES
- UNIT 16 THE BRAIN



BIOCOMPATIBILITY & DEVICE DESIGN

- UNIT 1 BIOMATERIALS AND MEDICAL DEVICES
- UNIT 2 CLASSES OF BIOMATERIALS
- UNIT 3 TISSUE ENGINEERING
- UNIT 4 DEVICE DESIGN
- UNIT 5 BIOMATERIALS PROCESSING
- UNIT 6 DEVICE FABRICATION
- UNIT 7 DEVICE CHARACTERISATION - SURFACE PROPERTIES
- UNIT 8 DEVICE CHARACTERISATION - BULK PROPERTIES
- UNIT 9 DEVICE CHARACTERISATION - IN VITRO STUDIES/BIOLOGICAL RESPONSE
- UNIT 10 DEVICE CHARACTERISATION - IN VIVO STUDIES
- UNIT 11 DEVICES DEGRADATION & FAILURE
- UNIT 12 INFLAMMATION, IMMUNE RESPONSE AND THROMBOSIS
- UNIT 13 WOUND HEALING IN THE PRESENCE OF BIOMATERIALS
- UNIT 14 ADVERSE REACTIONS TO BIOMATERIALS
- UNIT 15 FUTURE DIRECTIONS
- UNIT 16 CLINICAL TRIALS, ETHICAL CONSIDERATIONS AND REGULATIONS

