

## MSc in Medical Visualisation and Human Anatomy

The Master of Science (MSc) in Medical Visualisation and Human Anatomy is a one-year taught Masters programme offered by the Digital Design Studio at The Glasgow School of Art in collaboration with the Laboratory of Human Anatomy, University of Glasgow.

### Programme content

Students undertaking the MSc in Medical Visualisation and Human Anatomy programme will split their time equally between the University of Glasgow (Laboratory of Human Anatomy) and the Glasgow School of Art (Digital Design Studio). The programme is delivered as two core areas – digital technologies applied to medical visualisation (delivered by the Digital Design Studio at Stage 1) and human anatomy (delivered by the Laboratory of Human Anatomy at Stage 2). In Stage 3, students work towards a large-scale self-directed final project, supported throughout by individual supervision.

### STAGE ONE: September – January

Four core courses in this term at Glasgow School of Art.

	Description	Credits
Core	3D Modelling and Animation	15
Core	Applications in Medical Visualisation	15
Core	Volumetric and 3D surface visualisation	15
Core	Core Research Skills for Postgraduates	15

### STAGE TWO: January – May

Three core courses in this term at University of Glasgow

	Description	Credits
Core	Introduction to Anatomy	20
Core	Structure and Function of the Human Body	20
Core	Cadaveric Dissection Techniques	20

### STAGE THREE: June – September

The full 60 credits of Stage 3 will be devoted to a research project and dissertation for final assessment. Dependent on the students' interests and background, the research dissertation can either be undertaken in a specialist field within human anatomy or the technological applications of medical visualisation. This would involve practical work either in the Laboratory of Human Anatomy or the Digital Design Studio relevant to their field of interest with appropriate supervision.

Efforts will be made to ensure that students on the programme are enabled to fully devote themselves to their chosen field of practice, whilst facilitating their learning through the provision of a range of interdisciplinary opportunities.

	Description	Credits
Core	Masters Project	60

## **Facilities**

Digital Design Studio is located within purpose built facilities at The Hub within the centre of Scotland's new Digital Media Quarter at Pacific Quay, Glasgow. A range of research and teaching spaces fitted out with state of the art technology allows the DDS to progress within a truly world-class facility. Students have access to their own computer for the duration of the programme.

### **Lab1**

Lab1 provides state of the art immersive Virtual Reality technology via a high-definition 13m x 8m stereo-projected display. The full body and object tracking facilities coupled with the latest in sound technology results in a multisensory VR experience. From a technical perspective, Lab1 is amongst the best in the world with the largest stereo projection space in Europe. The Virtual Reality facilities at the Digital Design Studio encompass a wide range of interaction devices such as vibro-tactile and grasp CyberTouch glove that tracks hand movement and provides vibro-tactile feedback to the fingertips and palm; desktop haptic probes which have been used to simulate a wide range of medical procedures, ranging from lumbar punctures to dental injections and nerve blocks; 3D laser scanner; full body motion tracking system; ambisonic sound lab; sound post-production studios; and video editing studio.

### **Anatomy Lab**

The Laboratory of Human Anatomy at the School of Life Sciences, University of Glasgow is one of the largest Anatomy departments in Europe with five Licensed Teachers of Anatomy, licensed by the Scottish Parliament. It has approximately 8000 people on the Bequest Register, and each year receives more than 50 cadavers in the Laboratory for teaching and research purposes. The Laboratory is involved in undergraduate teaching, delivering to medical (1200 students), dental (over 400), nursing (150 students) and science students (approximately 1500 students) and postgraduate teaching to trainees across a multi-disciplinary range including surgeons, podiatrists, nurses, first aiders, physiotherapists and sports therapists. With the large numbers on the bequethal register, and with such high capacity for storage, coupled with the fact that each student will be working on one part of the body (e.g. arm, thigh, heart etc.), means there is ample suitable material for use by the students. In addition, the LHA is the only place in the world to have access to the Hunterian anatomical collection, which can also act as an additional resource depending on the nature of the studies undertaken.

### **Your career**

Subsequent career opportunities exist within the commercial healthcare technology industry (device manufacturer, etc.), the public and private healthcare sectors, as well as in academic medical visualisation research. Career outcomes for the students with medical, biomedical, anatomy, or health professional backgrounds will be able to gain 3D visualisation skills that will enhance their portfolio of abilities; students with computer science or 3D graphics background will be involved in the design and development of healthcare related products through digital technology, e.g. diagnostic and clinical applications, creating content involving medical visualisation, simulation, cardiac pacemakers, and biomechanically related products for implantation, such as knee, hip and shoulder joint replacements.