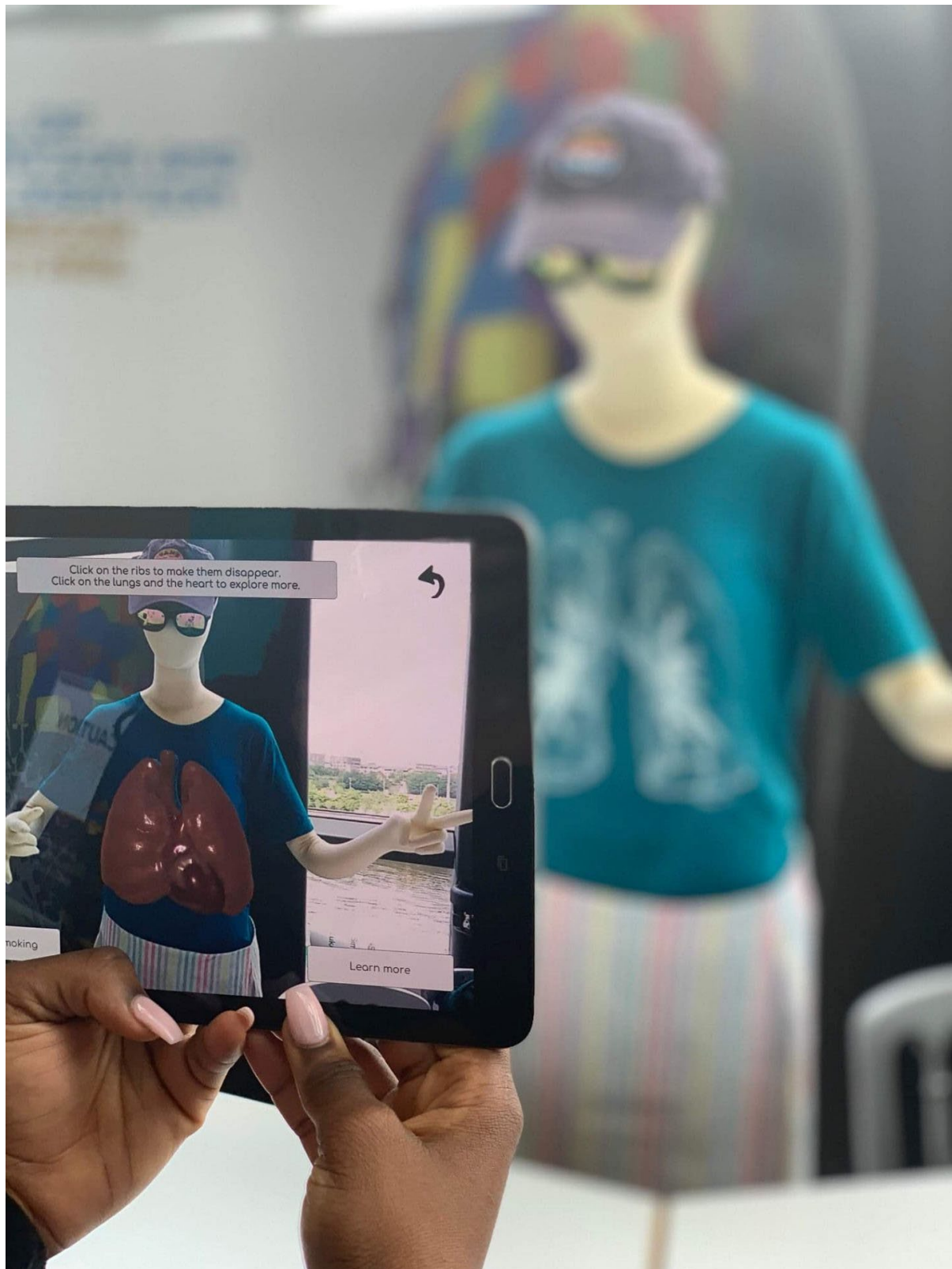


Glasgow School of Art Programme Specification

Programme Title: MSc Medical Visualisation and Human Anatomy



1. Programme Details	
Programme Title	MSc Medical Visualisation and Human Anatomy
School	School of Innovation and Technology
Programme Leader	Dr Matthieu Poyade
Award to be Conferred	MSc Medical Visualisation & Human Anatomy
Exit Awards	Stage 1: PG Cert in Medical Visualisation & Human Anatomy Stage 2: PG Diploma in Medical Visualisation & Human Anatomy Stage 3: MSc in Medical Visualisation & Human Anatomy
SCQF Level	11
Credits	180
Mode of Study	Full-time, Part-time
HECOS Code	100264/100358/100363

Academic Session	2023-24
Date of Approval	Programme Approval March 2023

Awarding Institution	University of Glasgow
Teaching Institutions	Glasgow School of Art and the University of Glasgow
Campus	Glasgow
Lead School/Board of Studies	School of Innovation and Technology
Other Schools/Board of Studies	N/A
Programme Accredited By (PSRBs)	The Institution of Medical Illustrators (IMI)

2. Entry Qualifications	
Highers	N/A
A Levels	N/A
Other	Good Bachelors Honours degree in a related discipline or equivalent professional practice. High calibre graduates from other disciplines may be considered if they are able to demonstrate an interest and ability in the field of visualisation. Applications are reviewed through application form with personal statement and and interview.
English Language Requirements	All students will have to provide evidence of English language proficiency when applying. International Students Students who require a Tier 4 visa to study in the UK must meet one of the following requirements in order to gain entry: <ul style="list-style-type: none"> • IELTS for UKVI Academic with an overall score of 6.5 with a minimum of 6.0 in all components; • Complete an acceptable Pre-sessional English Language Programme taught in the UK with an outcome that equates to the IELTS scores as stated above.

	Students who have a degree from an English speaking country, or are a national of an English speaking country as listed in the UKVI Guidance, may use this as proof of English language ability.
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3. Programme Introduction

The Master of Science (MSc) in Medical Visualisation & Human Anatomy is offered by The School of Innovation and Technology at The Glasgow School of Art (GSA) in collaboration with the Anatomy Facility (AF), School of Medicine, Dentistry, and Nursing, University of Glasgow (GU).

This programme provides an academic framework for postgraduate students to engage with the application of 3D medical dataset visualisation, computer graphics, serious games and Extended Reality technologies (such as Augmented and Virtual Reality) across a variety of biomedical fields.

The programme also creates a unique opportunity to combine the theoretical and practical aspects of human anatomy education, including cadaveric dissection, with state-of-the-art digital technologies, to foster interactive, immersive and augmented anatomically accurate digital reconstructions of the human body.

Students develop the knowledge and skills necessary to create innovative solutions that foster a greater understanding of “normal” anatomy and regional variations and provide novel approaches to aid multi-disciplinary fields in anatomical knowledge, understanding, training and skills transfer, building upon medical datasets. With the steadily increasing use of multimedia resources, 3D interactive visualisation to support communication, clinical diagnosis and training in a variety of biomedical fields such as dentistry, anatomy, surgery, veterinary sciences and so on, the MSc Medical Visualisation & Human Anatomy places graduates in a leading global competitive position to advance in medical research, academia, and commercial organisations.

The programme attracts graduates in biomedical, dental, medical, surgical, and allied health professional programmes as well as those from other design, life-sciences, computer science, mathematics, physics, computer graphics and visualisation specialties, including employees from commercial organisations involved in designing, developing and marketing healthcare related products and simulations.

4. Programme Aims

The aims of the programme are to:

- Develop students’ awareness, knowledge and skills in human anatomy and in 3D digital technologies, their applications in medicine and healthcare
- Provide a practical introduction to commercial visualisation hardware and software, and use them to interactively explore, manipulate and understand 3D medical datasets
- Develop students’ autonomous and self-directed exploration, individual expression and critical activity within an environment of professional and peer-critique.
- Encourage multi-disciplinary research in medical visualisation and related fields including computer science, art and design, medical science, healthcare, and education, etc.

- Enable students to design and conduct an independent Masters research project and communicate its outcomes.
- Produce graduates capable of utilising key digital technologies to a professional level where their value to business, society and industry is made explicit.

5. Programme Intended Learning Outcomes

After full participation in and successful completion of the programme, students will be able to:

- Demonstrate a critical understanding of effective methods of visualising 3D data appropriate to medical visualisation and human anatomy
- Demonstrate critical and practical skills involved using 3D digital technologies, e.g. data acquisition (2D and 3D), commercial visualisation software, and interactive applications
- Critically review and analyse existing problems, sources and knowledge in a manner that allows informed judgement and critical appreciation across multiple disciplines related to medical visualisation.
- Communicate effectively with peers and tutors, using accepted terminology within professional and academic standards.
- Demonstrate detailed knowledge about human anatomy and anatomical practices
- Apply research techniques to plan and execute an independent research project within the domain of the medical visualisation and human anatomy

6. Description of Learning and Teaching Approaches

Courses and projects will be undertaken by directed and self-directed study, and will involve lectures, tutorials, workshops, practical sessions, guest talks, and independent research. Students will be expected to take significant responsibility for the management of their learning.

The principal teaching strategies employed on this programme are:

Self-directed Learning and Research

In line with other taught postgraduate programmes at GSA, significant emphasis in the MSc Medical Visualisation & Human Anatomy programme is placed on self-directed study, from project design and development, to gaining theoretical knowledge through traditional research methods. This is further developed by emphasizing upon autonomy, reflection upon personal learning and self-directed project work within a collaborative environment.

Lectures

Lectures and seminars are used to disseminate theoretical and contextual knowledge and address specific issues underpinning practical work. Lectures also have the broad aim of generating further debate in seminars, tutorials or further enquiry in self-directed learning or research.

Labs and Practical sessions

Practical sessions are designed to provide students with hands-on experience in studio lab sessions. These sessions usually follow lectures, and take place in computer studios and/or anatomy laboratories as practical classes. Anatomy labs include study with both pre-prepared prosections and practical cadaveric dissection. Tutors/Teaching Assistants/Demonstrators will be on-hand

during the scheduled sessions to help students and answer their questions. Computer studios within SIT can be used by students at any time during opening hours.

Guest Talks

Extra-curricular input from guest speakers will enable visualisation students access to, and understanding of, relevant contemporary practice, research and commercial contexts.

Dissertation Support & Arrangements

Dissertation projects are significant and challenging student-led projects, and the following arrangements are to ensure that students are provided appropriate support in adequately preparing and planning for their projects, and in completing them.

During stage 2, a range of support is provided to help students prepare research proposals for stage 3. A lecture on dissertation projects will present dates, deadlines and administrative and practical guidance for the dissertation projects and proposals. Students are asked to submit draft proposals to allow initial feedback to be given by the end of stage 2. Additional talks on a range of relevant topics (ethics, referencing, etc.) are also offered by school and Learning & Teaching staff during stages 2 and 3.

Students may propose their own projects, or work from lists of projects provide. Students are expected to meet with possible tutors obtain agreement from a tutor for project supervision. Project proposals are signed by both supervisor and student accordingly.

All students are expected to obtain two supervisors – one from the University of Glasgow and one from SIT. The programme team can assist in helping students find suitable supervisors.

During the dissertation itself, supervisory support is individual in nature, and adapts to the needs and demands of the student. Students are expected to meet regularly with supervisors over the dissertation period (typically for short meetings every other week). Practical support in technical aspects of project work is also available to students over stage 3, through a mix of scheduled support sessions and by-appointment with tutors.

7. Description of Assessment Methods

Formative and summative assessment strategies are employed through the MSc programme. Formative and summative assessment feedback operates to guide students in improving their work, including interpersonal skills, formal presentation abilities, creative practice, technical and anatomy knowledge, and academic writing and research.

Formative assessment may be through presentation at seminars, tutorials, and so on, or through the submission of intermediate work. Formative feedback from intermediate project submission would typically be written, while ongoing formative feedback may be in written or verbal forms. Feedback then provides the opportunity to refine and develop work and ideas, and to prepare for submission in the summative assessments.

Summative assessment is through a mix of practical projects with supporting documentation and reflective reports, through presentations, and through written essay and report submissions. Anatomy skills, knowledge and understanding are also assessed through practical dissection work, anatomical spot tests and multiple-choice class tests.

The final independent research project is assessed through written dissertation, practical submission and supporting presentation.

Assessment is regulated by the GSA Code of Assessment, and the regulations published in the GSA section of the Postgraduate Degree regulations published by The University of Glasgow.

8. Programme Structure

Students undertaking this programme split their time equally between GU (AF) and GSA (SIT). The programme is delivered as two core areas – digital technologies applied to medical visualisation (delivered by SIT at Stage 1) and human anatomy (delivered by AF at Stage 2). The stage 3 independent research project is co-supervised by staff from both institutions.

In Stage 1, students study two courses:

Academic Skills for Masters Research (20 credits)

Medical Visualisation (40 credits). This course comprises three key elements, covering volumetric visualisation of medical data, 3D modelling and related digital creative practices, and interactive application development.

Both courses run over the whole teaching period of Semester 1.

Stage 2 courses at The University of Glasgow are:

Introduction to Anatomy: Cells to Organs (20 Credits)

Structure and Function of the Human Body 1 (20 Credits)

Structure and Function of the Human Body 2 (20 Credits)

These are each delivered in four week 'blocks', with summative assessment at the end of each block, such that Introduction to Anatomy: Cells to Organs is completed before commencing the first Structure and Function of the Human Body course.

Part-Time Study

Part-time study is also offered through a day-release mode, with part-time students taking the same classes at the same time as full-time students. Part time study will generally require two days of attendance per week during the teaching period for Semester 1 courses.

For Semester 2 courses, offered by the University of Glasgow, which are taught in four week blocks, the amount of days attendance may vary from week to week.

Schedules will be provided in advance of each term to allow students to plan their time accordingly. Contact hours are supplemented through the use of online support through, e.g., virtual learning environments.

For students studying part time, 60 credits of taught courses would be taken in each of year 1 and year 2. The research project (60 credits) can be completed full time in the summer of year 2 or part-time with submission in Year 3, across semesters 1 & 2.

The independent research project in Stage 3 requires attendance at supervision meetings, but there may be held online for students who would prefer to complete this course in a distance learning mode.

The recommended part-time course structure is shown in the tables below, after the full-time programme structure.

Stage 1 – Full Time

Course	Credits	SCQF Level	Semester	Course Code
Academic Skills for Masters Research	20	11	1	PCXS104
Medical Visualisation	40	11	1	PMVS105
Total Stage Credits	60			

Stage 2 – Full Time				
Course	Credits	SCQF Level	Semester	Course Code
Introduction to Anatomy: Cells to Organs	20	11	2	PMVS205
Structure and Function of the Human Body 1	20	11	2	PMVS206
Structure and Function of the Human Body 2	20	11	2	PMVS207
Total Stage Credits	60			

Stage 3 – Full Time				
Course	Credits	SCQF Level	Semester	Course Code
MSc Research Project	60	11	3	PVIS301
Total Stage Credits	60			

Part Time - Year 1, Stage 1				
Course	Credits	SCQF Level	Semester	Course Code
Medical Visualisation	40	11	1	PMVS105
Introduction to Anatomy: Cells to Organs	20	11	2	PMVS205
Total Stage Credits	60			

Part Time - Year 2, Stage 2				
Course	Credits	SCQF Level	Semester	Course Code
Academic Skills for Masters Research	20	11	1	PCXS104
Structure and Function of the Human Body 1	20	11	2	PMVS206
Structure and Function of the Human Body 2	20	11	2	PMVS207
Total Stage Credits	60			

Stage 3 – Part Time – Year 2 and Year 3 Options				
Course	Credits	SCQF Level	Semester	Course Code
MSc Research Project	60	11	3 of Year 2 Or 1 & 2 of Year 3	PVIS301

9. Outgoing Exchange and Visiting Student Arrangements
N/A

10. Relevant QAA Subject Benchmark Statements and Other External Reference Points
Subject Benchmark Statements describe the nature of study and the academic standards expected of graduates in specific subject areas. For further information relevant to this programme see:

The QAA statement regarding Masters level education available at the following link:
<https://www.qaa.ac.uk/docs/qaa/quality-code/master's-degree-characteristics-statement.pdf>

The Level 11 Descriptors provided by the SCQF governing attainment during Masters level study, available at: https://www.sqa.org.uk/files_ccc/SCQF-LevelDescriptors.pdf

11. Programme Regulations and Requirements for Progression

All GSA Degree programmes are validated by the University of Glasgow and the [GSA's Programme Regulations](#) are published in the University of Glasgow University Regulations.

These regulations include the requirements in relation to:

- (a) Award of the degree
- (b) Progression requirements
- (c) Early exit awards

In referring to regulations for degree programmes, students should consult the University Regulations which were in force in the academic session in which they first registered for the degree programme in question.