THE GLASGOW SCHOOL OF ART	**Programme Specification**

Please note that this programme specification is correct on the date of publication but may be subject to amendment prior to the start of the 2019/2020 Academic Year

1. Programmes:

Programme Title	**UCAS Code (Completed by Registry post approval)**	**GSA Code (Completed by Registry post approval)**
MSc Visualisation with the following named awards: - Heritage Visualisation - Medical Visualisation & Human Anatomy - Serious Games and Virtual Reality	Click here to enter text.	Click here to enter text.

Head of School	Prof. Paul Chapman
Head of Department	Dr. Daniel Livingstone
Head of Programme	Dr. Daniel Livingstone

Minimum Duration of Study	12 months
Maximum Duration of Study	36 months
Mode of Study	Full-time and part-time
Award to be Conferred	1. MSc Heritage Visualisation 2. MSc Medical Visualisation & Human Anatomy 3. MSc Serious Games and Virtual Reality
Exit Awards	60 Credits (Including Core Research Methods): PG Cert in 1. Heritage Visualisation 2. Medical Visualisation (for September intake, full-time) or Human Anatomy (for January intake, full time) or Medical Visualisation & Human Anatomy (part time) 3. Serious Games and Virtual Reality 120 Credits: PG Dip in 1. Heritage Visualisation 2. Medical Visualisation & Human Anatomy 3. Serious Games and Virtual Reality 180 Credits: Master of Science in 1. Heritage Visualisation 2. Medical Visualisation & Human Anatomy 3. Serious Games and Virtual Reality
Source of Funding	SFC, Personal

Version	Session	Date of Approval
19.20.01	2019/20	18/01/2018 – SimVis BoS

3. SCQF Level:
11

3.1 Credits:
180

4. Awarding Institution:
University of Glasgow

5. Teaching Institutions:
The Glasgow School of Art/University of Glasgow

6. Lead School/Board of Studies:
School of Simulation and Visualisation

7. Programme Accredited By:
The Institution of Medical Illustrators (IMI) for MSc in Medical Visualisation and Human Anatomy

8. Entry Qualifications	
8.1 Highers	**N/A**
8.2 A Levels	**N/A**
8.3 Other	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.
8.4 IELTS Score Required on Entry	IELTS with an overall score of 6.5 with no component less than 6.0 from a UKVI approved examination centre.

9. Programme Scope:
SimVis is the largest postgraduate research centre of the GSA, with a complement of multidisciplinary Masters students, PhDs and an international multidisciplinary academic and research staff. Since its inception in 1997, it has experienced substantial growth. Within the school

there are a range of state of the art virtual reality, haptic and stereoscopic 3D projection facilities. SimVis specialises in advanced 3D visualisation and interaction technologies, such as: 3D laser scanning, visualisation, 3D animation, 3D stereo displays, haptics, motion tracking, gesture based interaction, advanced interfaces, ambisonic sound, and machine vision. The primary focus of research and development is centred on user interaction with real-time digital data involving multidisciplinary skill sets. SimVis has built an international reputation in 3D visualisation and interaction research supported by new tools, techniques and methodologies.

The Master of Science (MSc) in Visualisation programme provides an academic framework for postgraduate students to engage with the application of 3D visualisation, computer graphics and games technologies across a variety of fields and in widely differentiated social, scientific, medical, technological and industrial contexts. The MSc programme creates a unique opportunity to combine architecture and heritage / human anatomy/ serious games with state of the art digital technologies, including 3D laser scanning, digital reconstruction of historic sites, artefacts or human anatomy, interaction and visualisation using virtual reality facilities.

Students are asked to locate their developing professional and personal practice within a specialist pathway: Heritage Visualisation, Medical Visualisation & Human Anatomy, or Serious Games & Virtual Reality.

1. Heritage Visualisation

While the rate of deterioration and disappearance of heritage sites has accelerated due to acceleration of human activities, major technological breakthroughs have occurred to enable high quality digital documentation, i.e. 3D digital capture has been developed allowing the creation of a high definition, high accuracy, and high productivity digital record. This technology has been adopted worldwide and over 3,000 international service providers are available to deploy this technology to facilitate the preservation of heritage sites. In addition, major innovations in digital image processing, 3D modelling software, broadband access, and computer hardware capabilities have allowed worldwide public access to voluminous data and information systems including 3D visualisation.

CyArk, a non-profit organisation with the mission of digitally preserving cultural heritage sites, has selected 500 of the world's most significant and endangered sites (CyArk 500) to be surveyed and digitally preserved within a 5-year time period.

Heritage Visualisation is a specialist pathway in the realm of 3D visualisation at SimVis. The MSc Heritage Visualisation aims to develop the knowledge and skill sets required to deliver and conduct digital documentation of world heritage sites and to create a unique opportunity to combine architecture and heritage with state of the art digital technologies, including 3D laser scanning, digital reconstruction of historic sites and artefacts, interaction and visualisation using virtual reality facilities. It allows an ideal opportunity for documentation, maintenance, and preservation of significant cultural sites and physical heritage assets, and to reconstruct them in a real-time 3D environment for use in tourism, art, education, entertainment and science.

This pathway enables students to understand the process of creating original 3D datasets of cultural objects and sites, to reconstruct and present immersive visualisation with interactive narratives, and provide a novel approach to foster multi-disciplinary study in computer science, history, geography, culture study, archaeology, architecture, the built environment, art and design, and tourist management, etc.

The MSc Heritage Visualisation has emerged as a result of successful strategic research collaborations between SimVis and a number of partners in cultural heritage. SimVis has various long-term partnerships with industry and governmental organisations and a world-leading portfolio of work. SimVis and Historic Scotland formed the Centre for Digital Documentation and Visualisation (CDDV) which specialised in the precise documentation and 3D representation of heritage objects, architecture and environments using state of the art, high resolution laser scanning technology and 3D visualisation software. The Heritage Visualisation teaching staff are able to draw on their experience working for CDDV and other heritage bodies in ensuring that the programme is not only academically rigorous, but is informed by current heritage practice.

The MSc Heritage Visualisation provides a higher level taught programme to those emerging from a wide range of disciplines. This places those graduates in a leading global competitive position to advance in research, academia, governmental and commercial organisations, gaining a greater understanding of techniques that may assist in digital heritage practices.

2. Medical Visualisation & Human Anatomy

The MSc Medical Visualisation & Human Anatomy is offered by SimVis at The Glasgow School of Art (GSA) in collaboration with the Laboratory of Human Anatomy (LHA), School of Life Sciences, University of Glasgow (GU).

It provides a unique opportunity to combine actual cadaveric dissection with 3D digital reconstruction, interaction and visualisation using state of the art virtual reality facilities. It allows students to examine human anatomy, and to reconstruct it in a real-time 3D environment for use in education, simulation, and training. This programme enables students to create original medical datasets, allows a greater understanding of “normal” anatomy and regional variations, and provides a novel approach to aid multi-disciplinary fields in anatomical knowledge, understanding, training and skills transfer. With the demand from clinicians of anatomical knowledge of students increasing (as a result in changes to medical and dental curricula) this pathway provides an ideal opportunity for enhancement of research into human anatomy, diagnostics, simulation, and visualisation.

This pathway has emerged as a result of successful strategic research collaboration between the School of Life Sciences, University of Glasgow and the SimVis. Recent £1.5 million funding from NHS Education for Scotland has further extended the collaboration to now include key members in the dental, surgical and biological fields to create and develop 3D interactive digital visualisation packages supporting dental education. This award has brought together anatomical, dental, surgical, digital and scientific fields in a key move to allow collaborations with the Glasgow Dental School, Raigmore Hospital (Inverness), LHA and the SimVis. These activities have fed back into the curriculum of the MSc Visualisation programme.

A strategically important area for academic development recommended by the General Medical Council (entitled Tomorrow’s Doctors) is the advancement of technology and its role in education and training of future doctors, dentists, biomedical scientists, Allied Health Professionals (AHPs), computer scientists and related professions to each of these areas. With technology developing at such a fast pace, and forming key areas for strategic development in areas of Medicine, Dentistry and the AHPs from an educational and training perspective, a unique opportunity is emerging. This format exists in being able to use cadaveric material under licensed premises, combined with expertise in 3D visualisation and interaction technologies based at the SimVis. This type of academic provision has never been offered to this level, where a unique opportunity allows the use of cadaveric material authorised by the Bequeathal process under legislation by the Anatomy

Act 1984, and its revisions in the Human Tissue (Scotland) Act 2006, to allow data capture (without identifying the individual) by using laser scanning technology or photogrammetry. Data can then be digitally modelled, reconstructed, and be viewed in a 3D stereoscopic environment. This develops novel methodologies and tools to enhance the anatomical understanding of students and trainees across fields in Medicine, Surgery, Dentistry, Anatomy and all AHPs that need a solid grounding in anatomical knowledge.

The MSc Medical Visualisation & Human Anatomy provides a higher level taught programme to those emerging from a wide range of medical, and related, disciplines that wish to develop knowledge and understanding in medical visualisation. This will place those graduates in a leading global competitive position to advance in medical research, academia, commercial organisations, gaining a greater understanding of techniques that may assist in communication with patients and/or clinical diagnosis.

This pathway would be attractive to graduates in biomedical, dental, medical, surgical, and allied health professional programmes. It would also be an attractive programme to those with a computer science, mathematics, physics, computer graphics and visualisation specialties, including those employees from commercial organisations involved in designing, developing and marketing healthcare related products and simulations.

In relation to the medical undergraduate programme revisions at University of Glasgow, there is now a demand from clinicians from a wide variety of fields to be more aware of anatomical applications and imagery. The current medical curriculum at GU is now being revised accordingly to combine anatomical and radiological training. This means that with advances in imaging of patients as a diagnostic tool, this degree can reach across both the scientific and medical arenas. There is now a move clinically to incorporate 3D reconstruction of the arterial system, especially in relation to interventional procedures. Therefore, postgraduate trainees will need to be versed in the newer forms of imaging and data processing, which is key to this postgraduate programme.

In a core syllabus in anatomy for medical students (Tomorrow's Doctors 3) developed by the General Medical Council, the Medical Council of Ireland and Scottish Doctors, clinical images rendered as 3D reconstructions, standard P-A and lateral radiographs of all parts of the body with special views of clinically critical areas, contrast radiographs, axial CT and MRI series, nuclear images; ultrasound images, and endoscopic views should be incorporated in curricula of modern medical practice and healthcare and allied professions including dentistry and dental care professions, physiotherapy, radiography and human communication sciences. These areas are covered in the specialist courses of the proposed MSc Visualisation programme.

On the other hand, with the steadily increasing classroom use of multimedia resources, simulated 3D interactive visualisation has been used to support dental, anatomical, surgical and other medical education due to its advantages on low cost, time efficiency, automated processes, ability to store performance history, and less medical related accidents. To develop these educational/training packages, a broad understanding of graphics, animation, video, sound, human-computer interface, and biomedical data is required. This pathway will also result in developing and enhancing existing multidisciplinary medical expertise as well as individuals from different background of visualisation and simulation being involved in the design, development, and marketing medical educational tools, simulation suites, and other healthcare related products.

3. Serious Games and Virtual Reality

Games are huge business nowadays and the technology behind today's games is being implemented in other industries beyond entertainment. Serious games are games with purposes beyond just providing entertainment. Examples include, but are not limited to, edutainment, health games, and games for policy and social change. The serious games field has huge potential for growth, particularly in the realm of education. In fact, according to Ambient Insight, the U.S. game-based learning market reached $231.6 million in 2010, and the combined five-year compound annual growth rate (CAGR) for content, services, and tools is 12.3% and revenues will reach $413.2 million by 2015. Virtual Reality has likewise being experiencing something of a renaissance in recent years, with a slew of new devices coming to market since 2013 (when the Oculus Rift DK1 was released). Virtual Reality is finding a new audience in the entertainment field, as well as with industrial and education sectors due to the rich immersion possible.

The academic sector is now responding to the growing global demand for Masters programmes in this area. Based on our expertise in 3D modelling and animation, motion capture technology, research activities of key members of academic staff in serious games, and the market demand of serious games, we develop the Serious Games and Virtual Reality pathway for the MSc Visualisation programme.

This pathway will be appealing to students from a wide range of disciplinary backgrounds ranging from computer science, life sciences, to business studies, education, social science and media studies, the course will allow them to develop industry appropriate skills for the 21st century knowledge economy, developing a unique portfolio of work and hands on experience.

The programme is delivered via a series of taught lectures, tutorials, set and elective projects, and self-directed learning. Students will be expected to engage in a high level of self-directed learning, research and independent critical reflection, as well as participating in the taught elements of the course of study.

10. Programme Aims:

The aims of the programme are:

• Develop students' awareness, knowledge and skills in 3D digital technology, and its applications in cultural heritage, medicine and healthcare, and serious games as appropriate to their chosen specialism

• Provide a practical introduction to commercial visualisation hardware and software, and use them to interactively explore, manipulate and understand 3D data captured from all types of sources

• Deploy the digital data acquisition, processing, archiving and presentation process as the synthesis of research, analysis, development and critique within the context of public, private and voluntary sectors while providing the context for scientific and technological change.

• Develop autonomous and self-directed exploration, individual expression and critical activity within an environment of professional and peer-critique.

• Encourage multi-disciplinary research in visualisation and related fields including computer science, history, culture study, archaeology, architecture, the build environment, art and design, tourist management, medical science, healthcare, and education, etc.

• Construct and apply research materials and methodology tailored to support a Masters project and its outcomes within an organisational context.

• Produce graduates capable of utilising key digital technologies to a professional level where their value to business, society and industry is made explicit.

10.1 Stage 1 Aims:

• Develop an understanding and knowledge of the key theories and techniques in 3D applications of digital technology in cultural heritage, medicine, healthcare, and other serious purposes beyond entertainment;
• Develop a comprehensive exploration of the relevant theoretical and practical issues involved in three-dimensional modelling and animation;
• Acquire knowledge of the principles and methods of 3D visualisation and apply these through the management of a small scale practical project;
• Acquire and develop an understanding of research methodologies.
• For Medical Visualisation & Human Anatomy, January start only: Generate through a research proposal a suitable project for Masters level, Stage 3, in relation to 3D visualisation as a research and technological practice.

10.2 Stage 2 Aims:

Note: While there is no formal progression requirement from Stage 1 to Stage 2, some of the Stage 2 aims on the Heritage and Serious Games pathways build upon those from Stage 1. Part-time students must have taken Stage 1 courses that are pre-requisites before taking any Stage 2 courses that build upon them.
The Medical Visualisation & Human Anatomy pathway Stages 1 and 2 are independent, and students do not need to have taken any Stage 1 (Medical Visualisation) courses before beginning Stage 2 (Human Anatomy).
The stage 2 aims are:
• Develop advanced skills and independent problem solving skills of theoretical and practical processes, and an understanding of the collaborative processes within practice of digital heritage , cadaveric dissection, or serious games & VR development;
• Use digital data acquisition hardware and software tools and related practices to explore, document and understand heritage objects, sites and context; (Heritage pathway)
• Detail key areas of clinically relevant anatomy, including regional anatomical variation and build detailed understanding of anatomical legislation and health and safety codes relating a laboratory dealing with human body donations; (Medical Visualisation & Human Anatomy pathway)
• Develop and submit a research proposal for a suitable dissertation project for Masters level, to be conducted in Stage 3.

10.3 Stage 3 Aims:

• Evidence a capacity for self-directed research and professional standards in a research project in the field of heritage/medical visualisation or serious games;
• Demonstrate, through a written report, critical and analytical reflection on the processes and research embodied in the research project.

11. Intended Learning Outcomes of Programme:

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

1. Demonstrate a critical understanding of effective methods of visualising 3D data that supports heritage, virtual environments, and medical data, as appropriate to their chosen specialism
2. Demonstrate practical skills involved using 3D digital technologies, e.g. data acquisition (2D and 3D), motion capture systems, commercial visualisation software, and Virtual Reality/user interfaces for visualisation applications in heritage, medicine and healthcare, and other domains.
3. Critically review and analyse existing problems, sources and knowledge in a manner that allows informed judgement and critical appreciation across multiple disciplines.
4. Communicate effectively with colleagues and professional bodies in a real-life context, using accepted terminology in related disciplines.
5. Apply research techniques to an independent research project based on acquisition, processing, and presentation of 3D digital data.
6. Plan and execute an individual research project that investigates themes within the field of 3D visualisation and related disciplines.

11.1 Intended Learning Outcomes of Stage 1

Knowledge and Understanding

- Demonstrate a critical knowledge and understanding of 3D modelling and animation techniques and concepts, in relation to the chosen specialism
- Demonstrate a critical knowledge and understanding of:
    - Digital documentation methodologies, applications and their appropriate use (Heritage Visualisation)
    - Volumetric and surface data, and appropriate techniques for visualisation (Medical Visualisation)
    - History and recent developments of serious games development and research (Serious Games & Virtual Reality)
- Develop a critical understanding of interactive 3D visualisation technologies and select appropriate methods to design and develop small-scale projects, in the context of the chosen specialism
- Display a critical understanding of relevant concepts, principles, research methods, methodologies and research ethics appropriate to their subject area

Applied Knowledge and Understanding

- Use a wide range of specialised software to support and enhance work in 3D visualisation
- Develop skills to enable independent learning of theoretical and practical processes.
- Use a range of specialised skills, techniques, and practices, for the design and development of heritage/medical visualisation or serious games.
- Completion of set practical projects that demonstrate an understanding of the 3D visualisation processes for the creation of 3D models and interactive applications for heritage, medical or games domains as appropriate to chosen specialism
- Design and develop a research proposal relevant to their studies / practice;
- Critically assess the strengths and weaknesses of relevant research methods;
- Identify and curate appropriate sources to inform research design and implementation;

Professional Practice: Communication, Presentation, Working with Others

- Communicate, through a relevant medium, how research can be applied in academic and/or professional contexts.
- Communicate to others the underlying theoretical and practical framework within which heritage/medical visualisation systems or serious games are built.
- Develop group working skills through the completion of practical projects.

11.2 Intended Learning Outcomes of Stage 2

Knowledge and Understanding

- Knowledge of key areas and techniques in cadaveric dissection, clinically relevant anatomy, heritage visualisation pipeline, or serious games development as appropriate for one of the specialisms of heritage visualisation, medical practice, serious games
- Demonstrate a significant range of core skills, techniques and practices associated with human anatomy and dissection techniques, heritage visualisation, or serious games design and development.
- Demonstrate an understanding of the functioning of health and safety applied to a laboratory dealing with human body donations, and application of anatomical legislation relevant to laboratory practice, including the Bequeathal process (Medical Visualisation & Human Anatomy)

Applied Knowledge and Understanding

- Completion of a group based small-scale practical project that demonstrates knowledge and understanding of human anatomy and cadaveric dissection, heritage visualisation, or serious games, as appropriate to chosen specialism:
    - Practical cadaveric dissection, or equivalent (Human Anatomy)
    - Game development project (Serious Games & Virtual Reality)
    - Heritage data acquisition and visualisation project (Heritage Visualisation)
- Recognise, understand and manage effectively different technical and theoretical approaches to the process of anatomical dissection, heritage visualisation, or serious games development.
- Pursue viable courses of action that demonstrate critical judgement through a practical project in relation to examples of heritage visualisation systems, human anatomy or serious games.
- Develop knowledge of research methodologies within the context and preparation of a research proposal in the area of heritage/medical visualisation or serious games.

Professional Practice: Communication, Presentation, Working with Others

- Further develop group working skills at a strategic level through the completion of practical group projects.
- Apply a range of standard and specialised instruments and techniques of anatomical dissection (medical visualisation & human anatomy)
- Present work to others in written report and presentation formats, demonstrating appropriate research and critical reflection skills

11.3 Intended Learning Outcomes of Stage 3

Knowledge and Understanding

- Plan and execute a significant individual research project that investigates themes within the field of heritage/medical visualisation, human anatomy, or serious games.
- Demonstrate critical engagement with the current knowledge base of 3D visualisation as applied to medical practices, cultural heritage, and serious games as appropriate to their chosen specialism,

Demonstration of knowledge and understanding of research methods specific to their individual project of research;

Applied Knowledge and Understanding

- Apply acquired knowledge and understanding to complex issues systematically and creatively
- Combine complex processes in the production of a research project in relation to the chosen specialism
- Pursue a project to an appropriate professional standard with a rigorous academic reflection on the processes undertaken.
- Application and management of a research project in relation to 3D visualisation.
- Demonstrate a critical and analytical review of the theoretical processes and concepts employed during the development and production of a research project.

Professional Practice: Communication, Presentation, Working with Others

- Demonstrate independence and self-direction through the development and management of a project of research
- Critically review and analyse existing problems, sources and knowledge in a manner that allows informed judgement and critical appreciation.
- Demonstrate high quality communication skills in tutorials and in project outcomes: in documents and applications in appropriate visual, verbal, and written formats
- Communicate to a specialist audience a critical and reflective knowledge of the 3D visualisation process through the execution of a Masters research project and an analytical and reflective Masters thesis.
- Demonstrate to others a critical knowledge of key visualisation processes used within the chosen specialism through the production of a Masters research project and thesis.

12. Assessment Methods:

There will be three key summative assessment points in the academic year. Students may exit the programme with a Postgraduate Certificate after successfully completing 60 credits (including Core Research Methods), or a Postgraduate Diploma after successfully completing 120 credits. Interim awards will need to be surrendered if a student resumes their studies and successfully achieves a higher exit award.

The table below details the points in the programme where formal assessment is expected to take place (Full time).

Stage	Summative assessment points
Stage 1: PgCert	Weeks 13-15
Stage 2: PgDip	Weeks 28-30
Stage 3: MSc	Weeks 43-45

Students enrolled part time will be assessed at the end of each post-graduate term (with dates corresponding to the full-time stages) in each year, with final project submission in the summer of the second year.

The programme provides two forms of assessment, formative and summative. Formative assessment will take the form of seminars, tutorials, and so on, which provide the opportunity to refine and develop key principles in fields of enquiry, and to prepare for submission in the summative assessments, i.e. in assessed projects, coursework, presentations, written examinations, and in the final submission for the Research Project, or in the case of those exiting at Postgraduate Certificate or Postgraduate Diploma level, for the assessed projects, coursework, presentations, and written examinations. Each course will be examined against its specific Learning Outcomes as outlined in the course specification.

The assessment of the Masters in Sound for the Moving Image will be regulated by the GSA Code of Assessment, and the GSA section of the Glasgow University Academic Calendar.

13. Learning and Teaching Approaches:

Students will be contacted in the pre-arrival period to access additional material about their programme.

Students will be expected to take significant responsibility for the management of their learning. Emphasis will be placed on developing and achieving self-reliance.

Courses and projects will be undertaken by directed and self-directed study, and will involve lectures, tutorials, workshops, practical sessions, guest lectures, and independent research.

• Self-directed Learning and Research

In line with other taught postgraduate programmes at GSA, significant emphasis in the MSc Visualisation 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 the focus upon pathway specialism, which emphasises autonomy, reflection upon personal learning and self-directed project work within a collaborative environment.

• Lectures
Lectures and seminars are used to disseminate theoretical, contextual and historical 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.

• Tutorials, Workshops, and Practical sessions
The tutorial is designed to provide students with hands-on experience in lab sessions. These sessions usually follow lectures, and take place in computer and/or anatomy laboratories as practical classes. Lecturers/Demonstrators will be on-hand during the sessions to help students and answer their questions. The labs can be used by students at any time when SimVis is open.

• Guest Speakers
Input from visiting lecturers and guest speakers will enable visualisation students access to, and understanding of, relevant contemporary practice, research and commercial contexts.

• Assessment
Formative and summative assessment strategies are employed through the MSc Visualisation programme. Formative and summative assessment feedback operates to guide students in improving their work, including interpersonal skills, formal presentation abilities, and academic writing and research.

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 given mid-stage 2 will present dates, deadlines and administrative and practical guidance for the dissertation projects and proposals. Students are asked to submit draft proposals at approximately week 10-12 of stage (with a set deadline given at the earlier presentation) 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 suggested by tutors. 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. Programme and Pathway leaders can assist in helping students find suitable supervisors.
In MVHA, all students are expected to obtain two supervisors – one from the University of Glasgow and one from SimVis. Again, Programme and Pathway leaders 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.

14. Relevant QAA Subject Benchmark Statements and Other External or Internal Reference Points:

The programme accords with the QAA statement regarding Masters level education available at the following link:
http://www.qaa.ac.uk/en/Publications/Documents/Masters-Degrees-Characteristics.pdf

Furthermore the programme is aligned with the Level 11 Descriptors provided by the SCQF governing attainment during Masters level study, available at http://scqf.org.uk/wp-content/uploads/2014/03/SCQF-Revised-Level-Descriptors-Aug-2012-FINAL-web-version1.pdf

15. Additional Relevant Information:

Students on the Visualisation programme will be taught and supervised by research active staff. Staff research interests will directly inform curriculum content, enhancing research-teaching linkages.

Notes on Part-Time Study

Part-time study is 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, and 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.
A part-time study guide will be prepared which will outline the amendments to programme delivery to enable part time study. Part time study will not be available to start in AY 2019-20.

Facilities

Access to studios and GSA facilities is generally limited to the regular opening hours, with extended hours available at key points of the year. The SimVis offers standard access hours year round. Reduced hours for access to workshops and library are in operation during the summer.

Exam Boards

Results from each course will be presented at the postgraduate exam board immediately following. Resits are to be normally completed before, and presented at, the next postgraduate exam board. (Postgraduate exam boards take place typically at the end of January, May and August each year, corresponding to the full-time study stages.)

16. Programme Structure and Features:

1. Heritage Visualisation

Course (Core)	**SCQF Credits**	**SCQF Level**
Academic Skills for Masters Research	20	11
Heritage Visualisation 1	40	11
Total	**60**	**11**
Exit Award	**PG Cert**	

Course (Core)	SCQF Credits	SCQF Level
Heritage Visualisation 2	40	11
GSA or SimVis Elective	20	11
Total	**60**	**11**
Exit Award	**PG Dip**	

Course (Core)	SCQF Credits	SCQF Level
MSc Research Project	60	11
Total	**60**	**11**
Exit Award	**Masters**	

2. Medical Visualisation & Human Anatomy

Course (Core)	SCQF Credits	SCQF Level
Academic Skills for Masters Research	20	11
Medical Visualisation	40	11
Total	**60**	**11**
Exit Award	**PG Cert**	

Course (Core)	SCQF Credits	SCQF Level
Introduction to Anatomy	20	11
Structure and Function of the Human Body	20	11
Cadaveric Dissection Techniques	20	11
Total	**60**	**11**
Exit Award	**PG Dip**	

Course (Core)	SCQF Credits	SCQF Level
MSc Research Project	60	11
Total	**60**	**11**
Exit Award	**Masters**	

Students undertaking this programme split their time equally between the University of Glasgow (LHA) and the GSA (SimVis). The programme is delivered as two core areas – digital technologies applied to medical visualisation (delivered by the SimVis at Stage 1) and human anatomy (delivered by the LHA at Stage 2).

3. Serious Games & Virtual Reality

Course (Core)	SCQF Credits	SCQF Level
Academic Skills for Masters Research	20	11
Serious Games Design and Implementation	40	11
Total	**60**	**11**
Exit Award	**PG Cert**	

Course (Core)	SCQF Credits	SCQF Level
Human Computer Interaction, Virtual & Augmented Reality	20	11
Game Development Project	20	11
GSA Elective	20	11
Total	**60**	**11**
Exit Award	**PG Dip**	

Course (Core)	SCQF Credits	SCQF Level
MSc Research Project	60	11
Total	**60**	**11**
Exit Award	**Masters**	

Core Research Methods
In exceptional circumstances it may be possible in the early stages of the programme to consider an alternate Core Research Methods course in Stage 1

Part time mode

Part time study will be offered as *day-release*, with part time students attending courses alongside full-time students during autumn and spring terms. Part-time study is currently under review, and will be made available from AY 2020-21 subject to approval.

Dual intake
The main student intake is in September but, subject to approval, it is also possible to begin studying this programme in January.

17. Can exemptions be granted?

Yes ☐ **No** ☒

If yes, please explain: Click here to enter text.

18. Does the programme comply with GSA APEL policy?

Yes ☒ **No** ☐

If no, please explain: Click here to enter text.

19. Are there any arrangements for granting advanced entry?

Yes ☐ **No** ☒

If yes, please explain: Click here to enter text.

20. Are there any arrangements for allowing students to transfer into the programme?

Yes ☐ **No** ☒

If yes, please explain stating requirements and levels to where this can apply:
Click here to enter text.

21. Are there any arrangements for allowing students to transfer into other programmes?

Yes ☐ **No** ☒

If yes, please clarify: Click here to enter text.

22. What are the requirements for progressing from each stage?

The criteria of assessment and progression are linked to the learning outcomes for the PgCert, PgDip and Masters stage of the programme. There is no formal progression requirement to progress from Stage 1 to Stage 2. Students must achieve at least an average grade of C3 in the taught (Stages 1 and 2) part of the programme to proceed to the research project. For all three stages of the programme, students will normally be assessed on the presentation of practical work, written submissions and/or verbal presentations, and written examinations. Each course will be examined against its specific Learning Outcomes and accumulation of the SCQF credits that these confer.

Pg Cert: After attaining 60 credits, including Core Research Methods, students can exit with a PgCert, as long as the student meets the requirements for award of PGCert as specified in the University of Glasgow Academic Calendar, GSA Section. (A grade point average of 9, equivalent to grade D, with at least 40 credits at grade D or above.)

PG Dip: At the end of Stage 2, assessment provides a point for those wishing to exit with the PgDip. A PgDip exit award is available where a student has taken all taught courses (120 credits) and meets the requirements for award of PGDip as specified in the University of Glasgow Academic Calendar, GSA Section. (A grade point average of 9, equivalent to grade D, with not less than 80 of these credits at grade D or above). Students who meet the criteria for progression and who do not choose the option to exit with PGDip will progress to Stage 3.

Masters: At the end of Stage 3, assessment consists of a review of practical work, written thesis and a verbal presentation.

23. Please confirm that the programme follows GSA Board of Examiner policy and procedures, including External Examiner participation:

Yes ☒ **No** ☐

If no, please explain: Click here to enter text.

24. Please explain programme management and committee arrangements up to, but not including, Boards of Study:

The programme is managed by a Head of Programme who is responsible for academic standards and direction, handles programme logistics, admissions, timetabling, day-to-day issues around implementation and operation of the curriculum, and leads the Programme Team. The HoP is supported by the programme team from SimVis, Glasgow School of Art (and from the Laboratory of Human Anatomy, School of Life Sciences, University of Glasgow for the Medical visualisation & human anatomy pathway).

Each member of the programme team specialises in their particular disciplinary area – 3D modelling and animation; medical visualisation; human anatomy; heritage visualisation; and serious games – and ensures the rigour and appropriateness of academic materials, teaching practice and assessment regime specific to each Pathway. These individuals ensure a balance of broad overview and granular specificity regarding programme operation and the courses that comprise this. The programme team attend the Staff Student Consultative Committee (SSCC) with student representatives, which reports to Board of Studies. The HoP also convenes a Masters programme meeting once per term to govern operational and staffing matters, and are charged with implementing any issues around quality assurance or enhancement that arise from the External Examiner's visits or Annual Programme Monitoring.

25. Please explain the systems and arrangements regarding:

a) Quality assurance of the management, operation and monitoring of the programme

Responsibility for the conduct of the programme will rest with the Programme Leader. A Student/Staff Consultative Committee will meet to consider operational matters, while the Examination Board will be responsible for the award of the degree and for issues relating to progression. All Committees connected to the programme will operate according to standard procedures determined by the Academic Council of The Glasgow School of Art. The Student/Staff Consultative Committee will report to the SimVis Board of Studies, which reports to the GSA Undergraduate and Postgraduate Committee.

The Head of Programme will have executive responsibility for the direction, coordination and administration of the programme. He/she will be primarily responsible for the initiation of programme developments, and will have particular responsibility for the monitoring of student progress and for the continuous monitoring of the quality of the programme in line with The Glasgow School of Art procedures.

In order to ensure that quality standards are monitored and the quality of provision continually enhanced, the MSc programme will undertake the following:

- regular programme team meetings
- Student/Staff Consultative Committee
- Annual Programme Monitoring
- Quinquennial Periodic Review
- Institutional review in accordance with the Quality Assurance Agency (QAA) and the Scottish Credit and Qualifications Framework (SCQF)

The programme team includes a senior member of staff from GU, Dr. Paul Rea and a deputy, who will attend the above committees as appropriate to ensure smooth communication between the two institutions regarding the Medical visualisation & Human anatomy pathway. He also represents the interest of the programme on University of Glasgow committees, keep the programme team informed of changes, and advise the team on appropriate responses.

b) Student feedback and representation

Students will have the opportunity to feed back to staff through the Student/Staff Consultative Committee (SSCC), a forum for discussion about all aspects of the programme and student experience at the GSA. The SSCC will meet during each Stage of the Programme and will report to the SimVis Board of Studies.

c) Programme based student support

Students are supported in their studies by a number of different departments and support mechanisms.

For academic studies, course leaders are the main source of academic support. Should there be any matters that cannot be dealt with by them students should consult the Head of Programme. Additional support for studies is through the SimVis specialised computer studios, GSA Library and Computer Centre where students will find books, journals, DVDs, videos, theses and dissertations. Further information can be found at http://www.gsa.ac.uk/library

Students receive a short induction programme in the computer centre where students will be given a GSA email account. This will be used for all electronic communication with them while they are on the programme and can be accessed via http://webmail.gsa.ac.uk

The Virtual Learning Environment (VLE) also supports academic studies. There are Learning Support & Development Tutors who specialise in supporting the processes of learning and offer specific services to students who are disabled in the learning environment or have specific learning difficulties. There is English Language support for students whose first language is not English and Careers advice for students on creative careers, enterprise and career planning throughout their studies. The Counselling Service provides confidential professional advice and is available to all students. The Student Welfare Service offers practical advice and information on a range of issues including funding and private sector accommodation and provides advice and support to international students. Email addresses and further information for all Student Support Services are to be found on the VLE. The Student Association acts as both a formal and informal focus for student activity and mutual support. They can be contacted at http://www.gsasa.org

Students on the Medical Visualisation & human anatomy pathway will be housed in Laboratory of Human Anatomy at University of Glasgow during the Spring stage and during Stage 3 if their MSc projects require access to the Anatomy Lab. They will be housed in SimVis during the Autumn stage

and Stage 3. Students on the International heritage and Serious games pathways will be housed in SimVis during period of their studies.