Programme Specification

Postgraduate Programmes

Awarding Body/Institution	University of London
Teaching Institution	Goldsmiths, University of London
Name of Final Award and Programme Title	MFA Computational Arts
Name of Interim Award(s)	Postgraduate Certificate in Computational Arts; Postgraduate Diploma in Computational Arts; MA Computational Arts
Duration of Study/Period of Registration	2 yrs full-time, 4 yrs part-time, or 3 years full-time/part-time combined
UCAS Code(s)	N/A
QAA Benchmark Group	Computing, Art and Design
FHEQ Level of Award	Level 7
Programme Accredited by	N/A
Date Programme Specification last updated/approved	August 2017
Primary Department/Institute	Computing

Departments which will also be involved in teaching part of the programme
N/A

Programme overview

The Computational Arts Masters at Goldsmiths is a hands-on program for the next generation of digital artists to develop practical skills in the fields of creative coding, physical computing and computational arts.

Students from all backgrounds are encouraged to be inventive, multidisciplinary and ambitious as they find themselves programming computers, building robots and designing generative systems. The computational arts field has grown dramatically in recent years and our students are at the forefront of this cultural change, making art by controlling complex computational technology in creative ways.

The programme is itself a multi-disciplinary research and postgraduate centre. The programme aims to bring together ideas and paradigms from computer science, art, and cultural theory, providing you with the necessary technical, theoretical and historical background to develop new aesthetics for computer media. As a graduate, you will be able to mediate between the worlds of computer science and technology and the arts and culture generally.

The MFA in Computational Arts is a two-year programme, while the MA in Computational Arts is a one-year programme. In those first two terms in the MA/MFA you will learn the fundamentals of programming and you will be led through a series of lectures, intensive hands-on workshops and individual or group projects in order to sharpen your technical skills. Through topics such as generative art, computer vision, genetic programming, machine learning, physical computing, you will receive highly specialised training in creative computing in collaborative and stimulating environment. You will be exposed to real world scenarios, such as interactive public installations, robotics, computational sculptures, games, generative art pieces and more, and learn how to make them using the technologies taught in the labs.

Since computational artworks don't necessarily involve computers and screens, you will also be encouraged to produce works across a diverse range of media. Supported by studio technicians in state-of-the-art facilities, you might also be producing works using tools such as 3D printers, laser cutters,

robotics, wearable technologies and textiles. At the heart of all these, will be code that you will write.

You will also engage in seminars in current issues relating to contemporary issues in Culture, Art, Science and Technology. During the summer term you will be participating in seminars, crit sessions and workshops providing you with support and ensuring that by the end of year 1 you will produce high-quality work (as part of the exhibition) as well as an essay contextualising your work in theoretical debates about artistic practice, science and culture.

If you choose to finish after the exhibition of the first year, you'll be graduating with an MA in Computational Arts.

In the second year of the MFA you will engage in regular group and individual meetings with tutors, deliver mini-projects and assignments as you develop with more independence your arts practice and work towards the final exhibition. You are also encouraged to take advantage of the culture of auditing that exists across the college and attend modules both in and outside of the department of computing.

Programme entry requirements

We welcome applications from anyone interested in a demanding two year full time programme that encourages an attitude towards artistic creation which is active, critical and aware of modern traditions, historical antecedents and new developments in art, design, technology and computer science.

You do not need to know how to code. The course caters for both people that know how to code and those that are only just beginning by providing a variety of classes at all levels.

You will normally hold a degree in a creative practice such as art, design, music, drama, studio arts, dance or a computer-based discipline (suitable people from other backgrounds, such as psychology, architecture, or cultural studies will also be considered.) Alternatively, you may have sufficient comparable and practical experience to take advantage of this programme. Applicants from the UK and EU are often asked to attend an interview.

You will also be required to also submit a portfolio of work in whatever form is their practice (dance, painting, photography, film, music, code).

If your first language is not English you should normally have an IELTS minimum score of 6.5. In exceptional cases we may accept you with a lower scores but we might then ask you to attend one of the programmes offered by the Centre for English Language and Academic Writing (CELAW) at Goldsmiths, University of London as they especially help you prepare for academic study. This is to ensure that you are able to complete work on your seminar presentations and essay in accordance with assessment requirements.

Aims of the programme

The programme offers you the opportunity to:

• Discover and develop a wide range of creative and computing abilities to enable you to thrive as an independent practitioner in areas such as: computational media art, sound art, video art, audiovisuals, physical computing and robotics, interactive and computational sculpture, tangible technologies, bodily and physiological interaction, wearable and ubiquitous computing, augmented and virtual reality, interactive narratives, data visualisation and sonification, performance and technology (among many others).

• Function as a multi-disciplinary worker within visual culture and new digital forms of production and distribution

• Develop the technical skills, conceptual framework, and artistic competencies so that you can participate in artistic practice and development of new technologies that are shaping our society and at the highest level.

• Be trained training in the use of the kinds of computing systems that are currently most important in a wide range of artistic, design and cultural practices and the creative industries, as well as technologies that are yet to become commonplace.

• Develop a thorough grounding in contemporary theoretical debates, which will be expected to inform your practice.

What you will be expected to achieve

In addition to subject specific knowledge and skills, the programme further enables you to develop a wide variety of transferable, intellectual, organisation and communication skills. By drawing on the expertise of core staff and the wide range of practitioners, critics, curators, computer scientists and theorists who work on the programme and who provide input to your work, we ensure innovation and consolidation between our academic work and the professional worlds of the arts, computer science and culture at large.

Students may exit after successful completion of taught courses to the value of 60 credits with the Postgraduate Certificate in Computational Arts, or after successful completion of 120 credits with the Postgraduate Diploma in Computational Arts, or after successful completion of the first year of the programme (180 credits) with an MA in Computational Arts.

Knowledge and Understanding		**Taught by the following modules**
A1	evidence a personal understanding of the conventions and techniques, which underlie your studio practice, and critical thinking	Computational Arts-based Research and Theory
A2	demonstrate an understanding of technology to be able to be innovative in the use and perhaps the design of new technologies at a high level	All taught modules

Cognitive and Thinking Skills		**Taught by the following modules**
B1	demonstrate a clear assessment of your artistic production and research.	All taught modules
B2	speak critically about your work concerns to your peers	All taught modules
B3	demonstrate how creative practice has been considered in the light of your critical and cultural research	Computational Arts-based Research and Theory
B4	present your own research papers and critical thinking to others	Programming for Artists; Physical Computing
B5	structure an essay based on your personal research according to your identified aims.	Computational Arts-based Research and Theory

Subject Specific Skills and Professional Behaviours and Attitudes		**Taught by the following modules**
C1	produce art/sound/writing/performance works using a range of digital design tools and techniques	Programming for Artists; Computational Arts-based Research and Theory; Workshops in Creative Coding
C2	employ a range of tools and techniques to make	

	web- based or standalone screen-based and digitally printed images	Programming for Artists; Workshops in Creative Coding
C3	make various kinds of digital moving images, both animated and filmed.	Workshops in Creative Coding; Programming for Artists
C4	create installations that involves an embedded computer system	Physical Computing
C5	make art/sound/writing/performance works that involve some specialist tools or view of digital systems	Workshops in Creative Coding

Transferable Skills		**Taught by the following modules**
D1	apply a high level of creative and critical evaluation skills to your own strengths and weaknesses as an artist working within an emerging discipline.	all taught modules
D2	critically assess some of the key aspects of contemporary techno scientific culture.	Computational Arts-based Research and Theory
D3	synthesise a range of topics and critical perspectives whilst developing your own critical perspective and research interests.	Computational Arts-based Research and Theory
D4	communicate effectively in both speech and written texts	All taught modules
D5	apply self-management skills, study independently, set personal goals, manage workloads and meet deadlines	All taught modules
D6	anticipate and accommodate change and work within contexts of, flexibility, uncertainty and creative risk particularly in the rapidly changing world of new technology.	All taught modules
D7	work effectively as part of a team	All taught modules
D8	understand the processes of team work and collaboration through fund-raising, publicity and distributing your work to a wider public through exhibitions, internet and web site dissemination.	All taught modules

Additionally, students who successfully complete the MFA in Computational Arts will be able to:

Knowledge and Understanding		**Taught by the following modules**
A1	N/A	N/A

Cognitive and Thinking Skills		**Taught by the following modules**
B1	apply cognitive skills to a written discussion of your own work within its artistic and cultural context	Computational Arts-based Research and Theory

Subject Specific Skills and Professional Behaviours and Attitudes		**Taught by the following modules**
C1	apply the above technical and studio outcomes to your own studio based arts practice and produce a substantial single work MA and MFA	Final Project in Computational Arts; Studio Practice
C2	apply the above technical and studio outcomes to your own studio based arts practice and produce a substantial coherent body of original work (MFA only)	Studio Practice
C3	present your work in the context of a professional	

	level exhibition, performance or similar public presentation. (MFA only)	Studio Practice
C4	apply the cognitive outcomes to a substantial written critical analysis of your own work within its artistic and cultural context (MFA only)	Studio Practice

Transferable Skills		**Taught by the following modules**
D1	N/A	N/A

How you will learn

Material is taught principally through a combination of lectures, seminar series and (principally) hands-on teaching sessions. In the first two terms, several tools and techniques will be studied formally, but thereafter, the teaching will be tailored to your individual needs. The professionals available to the programmes cover a wide, challenging and diverse range of specialisms and research interests. They provide a unique opportunity to enhance your understanding or your own work in terms of professional practice.

Students are expected to engage in considerable independent reading and practical work for all modules culminating in the final project. This independent work will be supported by library resources, lab facilities, a state-of-the-art fabrication lab and supervision from teaching staff.

The outcomes that relate to computational arts research and theory are achieved through the acquisition of theoretically based work. Staff and student-led seminars address the conventions that inform and support practices within visual culture and techno-scientific culture. The presentation of your research material at seminars and in examined essays contribute significantly to those outcomes which give you further opportunities for the development of oral and communication strategies.

How you will be assessed

Knowledge & Understanding is assessed through group and individual projects throughout the two years of the programme. In the modules relating to computational arts research and theory you will be assessed by reports and presentation of research outcomes.

Studio Practice outcomes are assessed through a series of increasingly large projects. In the modules of the first year you will be assessed in either an individual or a group project. There is then a larger project in the summer of the first year. Then the major part of the second year will be taken up with producing a project that will be part of the MA/MFA final show. Both of these large projects are accompanied by a 1,500 word and 2,500 documentation report. These reports function to assess your acquisition of the transferrable skills of the program.

In the case of the MA you assessed in an individual project at the end of the year which is accompanied by a report documenting your work.

The outcomes of the computational arts theory seminars will be assessed through essays and practical research projects based and proceeding according to identified aims agreed upon with a staff member. The reports should exhibit a comprehension of how your creative practice has been considered in the light of critical and cultural research.

Marking criteria

Mark	Descriptor	Specific Marking Criteria
80-100%	Distinction (Outstanding/Exceptional)	A mark of 80% or above is awarded when candidates demonstrate an exceptional application of appropriate knowledge, understanding and skills as specified in the programme learning outcomes.
70-79%	Distinction	A mark of 70%-79% is awarded when candidates demonstrate an excellent application of appropriate knowledge, understanding and skills as specified in the programme learning outcomes. The final body of work will demonstrate of original and ambitious work. It will have achieved its aims showing an exceptional level of technical competence and critical awareness of independent artistic practice the student's own articulation of these concerns in a sourced and internally coherent written investigation. The work will have achieved its goals in relation to the experience of the student, be excellently researched and planned The work will be able to exhibit a highly developed awareness of its medium and of issues around audience, interactivity and representation
60-69%	Merit	Awarded when candidates achieve a very good standard in the overall effective application of appropriate knowledge, understanding and skills as specified in the programme learning outcomes. The work will have achieved the majority of its goals. The final body of work will demonstrate a significant degree of originality and ambition. The work will have achieved its aims showing a good level of technical competence, critical awareness of independent artistic practice and the student's own articulation of these concerns in a sourced and internally coherent written investigation. The work will have achieved its goals in relation to the experience of the student and be very well researched and planned. The work will be able to exhibit a good, developed awareness of its medium and of issues around audience, interactivity and representation.
50-59%	Pass	Awarded when candidates demonstrate achieve a good standard in the overall application of appropriate knowledge, understanding and skills as specified in the programme learning outcomes. The final body of work will demonstrate a degree of originality and ambition. The work will have achieved some of its aims showing a good level of technical competence and critical awareness of independent artistic practice and the student's own articulation of these concerns in a sourced and internally coherent written investigation. The work will have achieved its goals in relation to the experience of the student. It will show evidence of a need for further research and planning. The work will be able to exhibit a reasonable, developed awareness of its medium and of issues around audience, interactivity and representation.
30-49%	Fail	A mark below 50% is awarded when candidates demonstrate little or no achievement in application of

		appropriate knowledge, understanding and skills as specified in the programme learning outcomes. The final body of work will demonstrate little or no originality and ambition. The work will have achieved none of its aims or show a good level of technical competence and critical awareness of independent artistic practice, nor the student's own articulation of these concerns in a sourced and internally coherent written investigation. The work will have not have achieved its goals in relation to the experience of the student. The work will not be able to exhibit a good, developed awareness of its medium and of issues around audience, interactivity and representation
10-29%	Bad fail	Represents a significant overall failure to achieve the appropriate learning outcomes.
1-9%	Very bad fail	A submission that does not attempt to address the modules specified learning outcomes. It will be considered a non-valid attempt and the module must be re-sat.
0%	Non submission or plagiarised	Work was not submitted or it was plagiarised.

How the programme is structured

YEAR 1

The first year consists of taught courses each of which has a end of term project. The purpose of year one is to hone your technical skills using state-of-the art techniques and tools and to begin the directed study of critical issues that impinge on arts practice, computational systems, and the interactions between the two.

You will have lectures, labs and seminars with a series of tutors for three days a week. You will work with popular open source programming environments such as Processing, openFrameworks and Arduino and will learn how to program in languages such as Java, Javascript and C++.

As part of the core modules, you will be introduced to programming and creative computation and you study generative art, sound synthesis and you develop your own software to manipulate images and video. In the second term you are introduced to more advanced topics in computational art such as complexity, computer vision, communication protocols for making networked art pieces, artificial intelligence, genetic algorithms and other advanced topics to broaden your expertise and skillset. At the same time you will be introduced to physical computing and microcontrollers and you will be trained to use sensors to make interactive physical objects. We encourage students to produce works across a diverse range of media. Supported by studio technicians in state-of-the-art facilities, our students also produce physical objects using tools such as 3D printers, laser cutters, CNC mills and other fabrication technologies. You will be expected to produce a small project for each of the half-term modules.

On one of these three days in the first term, you will take part in a series of computational arts research and theory seminars followed by tutorial sessions on theoretical, computational, and cultural concepts. Seminar topics include: Critical Theory, Feminist technoscience, Science and Technology studies, Data Practices, Computational Aesthetics, Ubiquity, Materiality, Speculation, Science Fiction, Post-colonial computing

You will be expected to work in the studio or use other technical resources independently or on collaborative work for the rest of the week.

During the summer you will work individually but also participate in seminars, crit sessions, and

masterclasses, providing you with support and ensuring that by the end of year 1 you will produce high-quality work (as part of the exhibition). We regularly invite world-class artists and curators to explain their work and engage in critical dialogue with the students. This allows students to develop a wider understanding of the contemporary art scene and how their work sits within the professional art world. Finally, social events, like trips to galleries, local cultural spaces and participation in hackathons offer the opportunity to students to further debate contemporary issues in art and train themselves technically. Graduating at the end of year 1 secures you an MA in Computational Arts.

YEAR 2

The work is done in small seminars and studio-based teaching— but you will be expected to take much more responsibility for your own work. By the end of the first year, you will be expected to have developed a plan for your main second year project and you will get appropriate level of supervision.

Your MFA show will be informed by some of the theoretical considerations discussed in the seminars. You will also write an essay that engages in the cultural and historical context of your work.

Students studying part-time in year one, will decide their options in consultation with the programme leader.

Academic Year of Study 1

Module Title	Module Code	Credits	Level	Module Status	Term
Programming for Artists 1	IS71016B	15	7	Core	1
Programming for Artists 2	IS71017B	15	7	Core	2
Computational Arts-based Research and Theory	IS71076A	30	7	Core	1-2
Workshops in Creative Coding 1	IS71014B	15	7	Core	1
Workshops in Creative Coding 2	IS71015B	15	7	Core	2
Final Project in Computational Arts	IS71020A	60	7	Core	3
And 30 CATS of options selected from an annually approved list. Other appropriate Level 7 modules can be taken with the approval of the programme leader but an indicative list is as follows:					
Advanced AV Processing (subject to availability)	IS74017A	15	7	Optional	1
Physical Computing	IS71013C	15	7	Optional	1
Physical Computing: Using Microcontrollers with Fabrication Techniques	IS71065C	30	7	Optional	1-2
Data and Machine Learning for Artistic Practice (subject to availability)	IS71074A	15	7	Optional	2
Approaches to Play: Mechanics, Dynamic, Aesthetics (subject to availability)	IS71075A	30	7	Optional	1-2

NB that the availability of optional modules depends on student demand and staff availability.

Academic Year of Study 2

Module Title	Module Code	Credits	Level	Module Status	Term
Studio Practice	IS72010A	120	7	Core	1-3

Computational Arts Critical Studies	IS72011B	60	7	Core	1-3

Academic support

Support for learning and wellbeing is provided in number of ways by departments and College support services who work collaboratively to ensure students get the right help to reach their best potential both academically and personally.

Students are allocated a personal tutor and a Senior Tutor in each department has overall responsibility for student progress and welfare. Departments arrange regular communication to students in the form of mailings and meetings as well as regular progress reports and feedback on coursework and assignments. This is in addition to scheduled seminars, tutorials and lectures/workshops.

Personal tutors will invite students to meet in the first two weeks of a new term and regularly throughout the duration of a programme of study. These meetings aim to discuss progress on modules, discussion of the academic discipline and reports from previous years if available (for continuing students). This way progress, attendance, essay/coursework/assessment marks can be reviewed and an informed discussion can be about how to strengthen learning and success.

Students are sent information about learning resources in the Library and on the VLE so that they have access to programme handbooks, programme information and support related information and guidance. Timetables are sent in advance of the start of term so that students can begin to manage their preparation and planning.

Taught sessions and lectures provide overviews of coursework themes, which students are encouraged to complement with intensive reading for presentation and discussion with peers at seminars. Coursework essays build on lectures and seminars so students are encouraged to attend all taught sessions to build knowledge and their own understanding of their chosen discipline.

In depth feedback is provided for written assignments and essays via written feedback forms and formative feedback with module tutors/leads is provided to endure that students' work is on the right track. Feedback comes in many forms and not only as a result of written comments on a marked essay. Students are given feedback on developing projects and practice as they attend workshops and placements.

Students may be referred to specialist student services by department staff or they may access support services independently. Information about support services is clearly provided on the College Website and as new students join Goldsmiths through new starter information and induction/Welcome Week. Any support recommendations that are made are agreed with the student and communicated to the department so that adjustments to learning & teaching are able to be implemented at a department level and students can be reassured that arrangements are in place. Opportunities are provided for students to review their support arrangements should their circumstances change. The Inclusion & Learning Support and Wellbeing Teams maintain case loads of students and provide on-going support.

The Careers Service and the Academic Success Centre provide central support for skills enhancement and run the Gold Award Scheme and other co-curricular activities that can be accredited via the higher education achievement award (HEAR).

Links with employers, placement opportunities and career prospects

Computational Arts is an emerging discipline at the cutting edge of art, design and technology. All career paths leading from it are therefore pioneering ones. This MA/MFA has been designed to enable you to develop the technical skills, conceptual framework, and artistic competencies so that you can participate in artistic practice and the development of new technologies that shape our society. It is expected that

graduates from our MA/MFA will test the conventions of the traditional design, media, and gallery systems through the application of technology in the arts.

Strong MA/MFA students and graduates will sometimes be employed through Goldsmiths Digital Studios and will work on live projects of members of staff.

You will also have developed technical skills that will be useful in several commercial areas, including the creative and culture industries and the cultural economy in general. Graduates of our programme often work in digital/creative agencies.

The MA/MFA provides the background needed to teach in a studio arts or multi-media environment. You are also well prepared to enter a doctoral programme in Computation, Art, Culture and Technology or pursue a creative practice as an individual or in a collaborative team.

The requirements of a Goldsmiths degree

Master's Degrees
All Master's degrees at Goldsmiths have a minimum value of 180 credits. Programmes are comprised of modules which have individual credit values. In order to be eligible for the award of a Master's degree students must have passed all modules on the programme.

Intermediate Exit Points
Some programmes incorporate intermediate exit points of Postgraduate Certificate and Postgraduate Diploma, which may be awarded on the successful completion of modules to the value of 60 credits or 120 credits respectively. Individual programmes may specify which, if any, combination of modules are required in order to be eligible for the award of these qualifications. The awards are made without classification.

Final Classification
There are four possible categories of final classification for Master's degrees: Distinction, Merit, Pass and Fail.

For further information, please refer to the Regulations for Postgraduate Taught Students, which may be found here: http://www.gold.ac.uk/governance/studentregulations/

Programme-specific rules and facts

Progression Requirements

Year 1 (MA and 1st year MFA) - In order to progress to the Final Project and the MA assessment, students must fulfil the requirements for a pass at PGDip level (pass all 120 credits of taught modules).
Year 2 (2nd year MFA only) - In order to progress to the 2nd year and the MFA assessment, students must fulfil the requirements for a pass at MA level (pass all 120 credits of taught modules plus the 1st year studio project).

Students who fail the essay in year one may re-sit the paper in September.

To be awarded the MFA, students must pass all four elements of the programme. Intermediate Awards
Students may exit after successful completion of taught modules to the value of 60 credits with the PGCert in Computational Arts

Students may exit after successful completion of taught modules to the value of 120 credits with the PGDip in Computational Arts

Students may exit after successful completion of the first year of the programme (180 credits with MA in Computational Arts)

How teaching quality will be monitored

Goldsmiths employs a number of methods to ensure and enhance the quality of learning and teaching on its programmes.

Programmes and modules must be formally approved against national standards and are monitored throughout the year in departmental staff / student forums and through the completion of module evaluation questionnaires. Every programme also has at least one External Examiner who produces an annual report which comments on the standards of awards and student achievement.

This output is considered with other relevant data in the process of Annual Programme Review, to which all programmes are subject, and which aims to identify both good practice and issues which require resolution.

Every six years all programmes within a department are also subject to a broader periodic review. This aims to ensure that they remain current, that the procedures to maintain the standards of the awards are working effectively and the quality of the learning opportunities and information provided to students and applicants is appropriate.

Detailed information on all of these procedures are published on the webpages of the Quality Office (http://www.gold.ac.uk/quality/).