ual: central saint martins

MA BIODESIGN

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APPROVED

MA Biodesign

Awarding Body	University of the Arts London
College	Central Saint Martins
School	M School
Programme	CSM Jewellery, Textiles and Materials (L029)
Course AOS Code	CSMMABIOX01
FHEQ Level	Level 7 Masters
Course Credits	180
Mode	Extended Full Time
Method	Face to Face
Duration of Course	2 years
Teaching Weeks	60 weeks
Valid From	2025/26
Collaboration	N/A
UAL Subject Classification	Textiles and Materials
PSRB	N/A
Work placement offered	N/A
Course Entry Requirements	The standard entry requirements for this course are as follows: • An honours degree in a relevant design subject area, for example, product design, architecture, textiles, fashion, science communication, building sciences, environmental science, ecology, 3D,

	media studies, graphic communication, gaming, data visualization, robotics • **Or** an equivalent EU/international qualification **And** ideally with at least one year of professional experience. **AP(E)L – Accreditation of Prior (Experiential) Learning** Exceptionally applicants who do not meet these course entry requirements may still be considered. The course team will consider each application that demonstrates additional strengths and alternative evidence. This might, for example, be demonstrated by: • Related academic or work experience • The quality of the personal statement • A strong academic or other professional reference **Or** a combination of these factors. Each application will be considered on its own merit but we cannot guarantee an offer in each case. **English language requirements** IELTS level 6.5 or above, with at least 5.5 in reading, writing, listening and speaking (please check our main English language requirements webpage).
Selection Criteria	We select applicants according to potential and current ability in the following areas: • Whose personal and professional aspirations are compatible with the aims and objectives of MA Biodesign (Personal Statement/Interview) • Who possess the necessary skills and fluency in their own design discipline to benefit from the course and preferably demonstrate some prior professional experience (Portfolio Review/Personal Statement/Interview) • Who can demonstrate prior experience and a strong personal commitment to cross-disciplinary and teamwork collaboration (Portfolio review/Personal Statement/Interview). • Who hold a strong personal commitment to

	sustainable change and an ability to articulate and reflect on issues relating to sustainability (Portfolio review/Personal Statement/Interview). These criteria are assessed through a review of the Personal Statement, Portfolio and Interview. You may be invited to an interview following our review of your application. Interviews are only arranged on the basis that the digital portfolio and video task demonstrates the applicant's ability to skilfully generate and communicate a range of ideas addressing problems relevant to the discipline of biodesign. **What we are looking for** We are looking for people who are personally committed to contributing to ecologically driven design strategies through their own design practice and who are excited about the potential of biodesign practices to contribute to this. Successful applicants will be able to embrace iterative, speculative and experimental approaches and will relish the opportunity to articulate and debate how their work can contribute to the wider issues relating to symbiotic and environmentally conscious design.

Awards and Percentage of Scheduled Learning

Year 1

Awards	Credits
Postgraduate Certificate (Exit Only)	60

Year 2

Awards	Credits
Postgraduate Diploma (Exit Only)	120
Master of Arts	180

Scheduled Learning Split by Level	
Level 7	12%
Total Scheduled Learning Split	**12%**

Course Aims and Outcomes

The Aims and Outcomes of this Course are as follows:

Aim/Outcome	Description
Aim	The course deploys cross-disciplinary teaching methods to understand, map, observe and analyse the complexity and interconnections of human and non-human life.
Aim	The course aims to nurture, catalyse, and support new interdependencies among humans, biological and artificial systems in an age of climate breakdown, ecosystems and biodiversity extinction.
Aim	The course encourages an ethos of ecological and social activism, fostering work that advocates for natural and culturally resilient design, rights for the environment and ecosystems and promoting human equity and racial justice.
Aim	The course teaches methods of integration for scientific protocols and lab experimental planning in creative design processes.
Outcome	Study and observe the interactions of complex systems, both natural and artificially intelligent across multiple scales and time dimensions to inform design thinking.
Outcome	Develop and integrate bio-informed strategies and whole systems understanding in the design of circular materials, behaviours and regenerative and intelligent systems.
Outcome	Proficiency in the use of biofabrication tools and methods within craft and design practice, to transform, control and/or collaborate with living organisms.
Outcome	Develop an original and comprehensive portfolio with innovation around: language, representation, documentation of micro-macro design process, lab practices, data collection and visualization and biofabrication methods tools and techniques.
Outcome	Consider bio-ethical implications to the manipulation and use of living organisms and systems as part of the creative design process.
Outcome	Developing cross-disciplinary collaborative practices, breaking down traditional silos between different fields and fostering an environment where professionals from diverse disciplines can work together to address dynamic, unpredictable, and complex challenges.

	Distinctive Features
1	**Cross-disciplinary collaboration**: The course cultivates an ethos of team working as a central learning experience. Students benefit from a design-driven curriculum and a multi-disciplinary teaching team of designers and scientists encouraging hybridization of disciplines towards innovative and feasible design solutions.
2	**A pedagogy that integrates science with design practice**: Through the design of novel interfaces, we mediate between living organisms and artificial systems, expanding proven scientific methods towards an interface with situated biodesign practices. The work aims at fostering symbiotic relationships between human-made systems and natural ecosystems
3	**Environmentally responsible design approaches:** The course emphasises the necessity of environmentally responsible design solutions to the global challenges of climate breakdown, social injustice, material scarcity, and ecosystems and biodiversity extinction.
4	**Responsive teaching and learning environments**: The course benefits from diverse approaches to teaching and learning. Teaching will be delivered via field study, lab environments, hands-on workshop demonstrations, studio tutorials and internal and external facing reviews. The course integrates varied methods of data analysis, acquisition and visualization to drive new forms of mapping, making and materiality for a range of applications, developing rigorous lab experimental protocols for creative design solutions.
5	**Research and Knowledge Exchange networks**: The course creates opportunities to collaborate with industry partners on Knowledge Exchange and Research oriented projects in this rapidly emerging field, with access to international biodesign and scientific research networks.

Course Detail

Biodesign is a rapidly evolving cross-disciplinary design field, often involving professionals from diverse fields such as biology, chemistry, biotechnology, computation and design. Due to its interdisciplinary nature and evolving applications, biodesign can be defined by other terms and practices such as bio-inspired, bio-integrated, biomimetic or biophilic design with the common goal of an integration of biological systems into design processes and technologies. As a result, there may be variations in how different individuals, organizations, or disciplines interpret and define “biodesign”.

While they vary in definition, they all relate to how we might create ecologically driven and socially conscious design with less environmental impact originated by patterns and behaviours associated with human consumption of resources, and interactions with the environment.

The MA Biodesign at Central Saint Martins specifically understands biodesign as a cross-disciplinary design approach, a means to incorporate intrinsic principles of biological living systems - to redefine the use of energy, water, air, waste and materials and thus foster a more holistic, regenerative and symbiotic future.

The course prompts students to consider:

- How they might design towards coexistence of human and non-human systems?
- How they might design biocompatible solutions with surrounding biodiversity and ecosystems?
- How they might design for climate adaptation?
- How they might provide answers for material scarcity?
- How they might contribute towards natural and cultural resilience in design?
- How they might implement strategies to catalyze environmental and racial and social justice?

The course will introduce students to ecological literacy, bio-ethics, whole systems thinking, lab experimental work, living systems integration, synthetic biology and genetic engineering, data acquisition and visualization, bio-craft and biofabrication and biocomputation design techniques, regenerative design and circular design, amongst others.

You will apply these principles to the design of systems and interfaces, new materials, products, services, urban ecology, landscape design and architectural propositions.

What to expect

An interdisciplinary and international course cohort: Students come from global backgrounds and diverse disciplines. They collaborate across the cohort to complement, develop, and enhance their skillsets and interests across science and design domains.

A strong emphasis on learning through doing with deep experimentation and iterative prototyping.

Independent practices: Ethical considerations, theoretical, global cultural and socio-environmental contexts will inform and situate the development of your personal biodesign agenda. The units are designed to enable you to become increasingly independent in the development of your design practice.

Industry experiences: the course values collaboration with a network of both internal and external partners, giving students the opportunity of working to real life biodesign briefs or on industry informed projects.

Course Units

MA Biodesign gradually guides you towards a design enquiry by developing a biodesign agenda in a topic related to your interests, knowledge and skills in agreement with your tutors. You will be expected to engage with relevant theoretical, scientific, design, and cultural references aligned with the course emphasis on eco-literacy, eco-activism, bio-aesthetics and bio-ethical issues related to responsible use of living organisms, potential impacts on ecosystems, and the implications of manipulating biological systems.

Unit 1: Introducing Biological Systems

This unit establishes the foundations of biodesign with the integration of the living sciences in design practices. The discipline is introduced by looking at complex systems, natural and artificial intelligence alike across multiple scales and time dimensions to help understand interactions between living and non- living systems. This understanding of complex interconnectedness and relationships between the living and the non-living is a core component of the unit's overall agenda.

The unit is structured with a series of taught sessions where you will be introduced to laboratory protocols and explore a range of bio-informed design strategies in design briefs. The unit will include field work and lab sessions that teach students how to investigate, collect, observe and monitor biological systems. These are then grown and manipulated in the lab where design strategies will emerge that drive

new forms of seeing, thinking and making.

The design briefs vary in duration and require team-based learning, development, and submissions. Some projects in this unit may incorporate external scientific or industrial partners. Teaching will introduce you to fundamentals of biology and scientific protocols relevant to cross-disciplinary design research.

Unit 1 concludes with the submission of a biodesign portfolio that illustrates and documents all the assignments and design briefs. You will also complete an oral and visual presentation communicating your work. The projects will require predominantly group work and you will be expected to be proactive, responsive, and collaborative in your learning.

Unit 2: The Collaborative Unit

This unit provides opportunities for cross-course creative and collaborative practices in relation to global challenges. The unit explores a range of thematic, experimental, and applied approaches to cross-disciplinary research, enquiry and knowledge exchange. The aim is to establish a framework for co-operation across the College in relation to our shared values in relation to social responsibility.

This unit explores the potential of collaborative practice and equips you with the ability to apply cross-disciplinary approaches through collective agency. It supports you in building temporary communities of practice and interest that combine different expertise, sources of knowledge and working methods beyond the single discipline or subject. The unit explores how relational and networked-based practices can create positive impact, based on a shared concern for a specific scenario, context or place relating to humans and non-humans. The focus is on how we might create or enable common and shared well-being.

Unit delivery will include teaching and learning in cross-course groups to enable a deeper level of debate and peer critique.

Unit 3: Exploring Biodesign Practices

Unit 3 aims at exploring a spectrum of practices in the Biodesign field, supported by the development of design research through interdisciplinary methods. The unit is punctuated by expert sessions covering a range of resilient design strategies that involve integrating principles from biology and ecology to create sustainable and adaptable solutions that address environmental and societal challenges. The unit will require both group and individual work and you will be expected to be proactive, responsive and collaborative in your learning.

Phase 1 – Making Biodesign Systems (10 weeks)

The first phase of Unit 3 will be structured in group work and focused on physical

model making, experimentation and testing prototypes. The overall teaching framework is supported by thematic workshops by staff and experts, demonstrating a variety of biodesign practices, bio-craft techniques and bio-fabrication methods. Projects in this phase may incorporate collaborations with industrial partners.

Phase 2 – Situated Biodesign Proposal (10 weeks)

Working individually or collectively the second phase of Unit 3 requires you to develop a clear design methodology, situating your hypothesis in a specific context, environment, scenario, scale and community that provides the foundational research for the Biodesign project in Unit 4 to be materialized.

You will be required to position and define your design inquiry through a bio-design narrative with evidence of data gathered through field work and interviews with experts; iterative prototyping featuring a range of experimental bio-design pieces demonstrating early testing of biological or design materials. This work will provide the content to shape, inform, and guide your research inquiry agenda.

You will advance the experimental work developed previously by demonstrating the integration of biological systems into your design strategy and contextualising theoretical knowledge into informed outcomes.

We encourage you to be proactive and to seek relevant external expertise or collaborations. This will allow you to test your ideas and enrich your learning against external stakeholders.

Sessions designed to help you discuss your work may be delivered during phase 2.

Unit 3 concludes with the submission of a proposal for your biodesign project in the format of a design portfolio that illustrates your topic of choice and documents all the assignments for both phases of the unit. You will also deliver an oral and visual presentation which will test how you articulate and communicate your work.

Unit 4: Biodesign Project Realisation

Unit 4 is dedicated to the creative production and communication of your final MA Biodesign project. The unit further expands and refines the work developed over the course, culminating with the materialisation and dissemination of your project to a large audience at the end of the year.

The project can be submitted individually or as group with other MA Biodesign students. The work must evidence a positive interaction with natural environments, ecosystems contributing to human and planetary health. The major project outcome can be materialised in various scales and formats, from objects, systems, processes and interfaces. Students are expected to demonstrate rigour in the

creation and development of viable design outcomes and materials.

In this unit, there is a strong emphasis on communication. You will be expected to submit a short film or animation which will articulate the planetary issues you are addressing. This will also showcase your research, development and final design outputs.

You will also present your project in an oral and visual format, where you will be expected to clearly situate, and debate related to a biodesign practice agenda in response to questions and comment.

While self-directed study will be prominent in this unit, peer-learning activities will also encourage you to articulate and discuss your personal agenda.

There will be a range of visual and verbal communication workshops designed to support and challenge the development and delivery of your project proposal. You will discuss and report on your progress in regular tutorials and group critiques.

Important note concerning academic progression through your course:

If you are required to retake a unit you will need to cease further study on the course until you have passed the unit concerned. Once you have successfully passed this unit, you will be able to proceed onto the next unit. Retaking a unit might require you to take time out of study, which could affect other things such as student loans or the visa status for international students.

CSM Academic Support is delivered by a team of academics and practitioners working alongside your course to help you progress and achieve your maximum potential as a student. Academic Support can help you to develop your skills in different areas, including critical thinking, research and writing, time management, presentations and working independently and collaboratively. These may be offered as part of your timetabled classes or as bookable tutorials and workshops.

Mode of study

MA Biodesign is offered in extended full-time mode which runs for 60 weeks over two academic years. You will be expected to commit 30 hours per week to study, which includes teaching time and independent study.

The course has been designed in this way to enable you to pursue studies, while also undertaking part-time employment, internships or care responsibilities.

Central Saint Martins offer a vibrant learning and working environment. The teaching and learning methods on MA Biodesign are designed to make best use of the context of the school setting. You will move fluently between group work in smaller learning groups or with the entire year cohort to one-to-one tutorials. We

regularly hold lectures, peer reviews, workshops, making use of the many technical workshop at Central Saint Martins. A culture of curiosity and experimentation informs the way learning takes place throughout the units.

Credit and award requirements

The course is credit-rated at 180 credits.

On successfully completing the course, you will gain a Master of Arts (MA degree).

Under the Framework for Higher Education Qualifications, an MA is Level 7. All units must be passed in order to achieve the MA but the classification of the award is derived from the mark for the final unit only.

If you are unable to continue on the course, a Postgraduate Certificate (PG Cert) will normally be offered following the successful completion of 60 credits, or a Postgraduate Diploma (PG Dip) following the successful completion of 120 credits.

Learning and Teaching Methods

The learning and teaching methods devised for this course include:

- Unit and Project briefings
- Inductions, Lectures and Seminars
- Lab Demonstrations
- Workshops
- Field Work
- Data collection, Analysis and Documentation
- Visual and Verbal Communication
- Interdisciplinary Study Teams
- Collaborative and Peer Learning
- Group and Individual Reviews
- Group and Individual Tutorials
- Guest Lectures
- Organisation, Curation and Public Dissemination of Course Work
- Projects with External Partners
- Dissemination Events

Assessment Methods

- Unit Portfolios
- Final Project Portfolio
- Video Work
- Prototypes
- Collaboration and Teamwork Practices Lab Work Practice and Scientific Protocols and Documentation
- Reflective Journals
- Verbal and Visual Presentations
- Annotated bibliographies
- Self and Peer Assessment

Reference Points

The following reference points were used in designing the course:

- The Learning and Teaching policies of the University of the Arts, London
- The QAA Framework for Higher Education Qualifications (FHEQ)
- Consultation with relevant industries.
- UAL Framework for Embedding the Principles for Climate, Racial and Social Justice

Course Diagram

MA Biodesign – PLEASE NOTE DUE TO VACATION DATES, SPECIFIC DELIVERY WEEKS MAY CHANGE.
S=summative assessment

<table>
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<tr><td colspan="12">Unit 1: Introducing Biological Systems
(40 credits)</td><td>S</td><td colspan="7">Unit 2: The Collaborative Unit
(20 credits)</td><td>S</td><td colspan="12">Unit 3: Exploring Biodesign Practices (Phase 1)
(60 credits)</td></tr>
<tr><td colspan="30">LEVEL 7 – Year 2</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr>
<tr><td colspan="9">Unit 3: Exploring Biodesign Practices (Phase 2) (continued)</td><td>S</td><td colspan="19">Unit 4: Biodesign Project Realisation
(60 credits)</td><td>S</td><td>S</td></tr>
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The University will use all reasonable endeavours to provide the Course and the services described in this Output. There may be occasions whereby the University needs to add, remove or alter content in relation to your Course as may be appropriate for example the latest requirements of a commissioning or accrediting body, or in response to student feedback, or to comply with applicable law or due to circumstances beyond its control. The University aim to inform you of any changes as soon as is reasonably practicable