

**Imperial College
London**

GLOBAL CHALLENGE:

Engineering novel solutions



**Postgraduate courses
2020–21 entry**

Top 10

Consistently ranked amongst the
top 10 universities in the world

Times Higher Education
World University Rankings 2019/
QS World University Rankings 2020

1st

in the UK for graduate
employability

The Guardian University Guide 2020

1st

Most innovative university
in the UK (3rd in Europe)

Reuters' Europe's Most Innovative
Universities 2019

No.1

Located in the world's
best student city

QS Best Student Cities 2019



HOW TO USE THIS GUIDE



Find your way to Imperial

You can use this guide to explore our Master's and Doctoral courses relating to our global challenge of **engineering novel solutions**. This is one of Imperial's four global challenges. It brings together our expertise – in areas ranging from infrastructure to medical technology – towards the goal of creating a more sustainable world.

Our global challenges (see back cover) guide the way we work together across subject boundaries to find solutions to some of humanity's biggest problems – like dwindling natural resources and AI's dominance in our lives.

Find the right course for you

We're building a community of creative problem solvers who can use their diverse talents to address these challenges.

That's why, in this guide, you'll find our Master's courses grouped by theme, rather than by department. These broader categories are designed to help you navigate all the ways you could contribute to making the world a better place – it may not be in a way you previously considered or in the department that matches your first degree.

What's more, it may lead to a career you never imagined or a job that doesn't yet exist. That's the exciting thing about studying at a place whose work is transforming the future.



Many of our departments
welcome students whose
background is not in the same
area of science or engineering.

If you already know which department or course you're interested in, visit our Study website to learn more:

► www.imperial.ac.uk/study/pg/courses

Our Doctoral students have the chance to be true pioneers in their field by creating brand new knowledge. See pages 22–24 to discover your options relating to engineering novel solutions.



A UNIQUE science community

Imperial is home to a global community of scientists, engineers, medics and business experts who are using their diverse talents to find solutions to some of the world's biggest challenges – like developing new energy storage technologies and reducing our global carbon emissions.

Our work to engineer a more sustainable world for future generations rests on our ability to drive progress, advance understanding and develop new technologies. We're guided in this work by a number of open questions:

What if we could...

- ▶ recover heat energy and store it for later use?
- ▶ manage our environment in real time using advanced sensors and data analytics?
- ▶ decentralise manufacturing to be located in our homes and neighbourhoods?
- ▶ develop a carbon-negative built environment?
- ▶ create business models that lead to further investment in renewable energy?

Read more about the work we're already doing to address these challenges (see right).

Making an impact

Our research-led approach also shapes the way we educate our students through teaching that opens everything up to question. It's a style of education that relies on learning by discovery, rather than memorising facts.



▲ Dr Firat Güder and his team from the Department of Bioengineering have created spoilage sensors that can be printed onto meat and fish packaging to indicate if food is safe to eat. The researchers believe the sensors could eventually replace less reliable 'use-by' dates and help reduce unnecessary food waste for supermarkets and consumers.

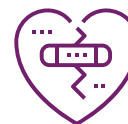


▶ Dr Mirko Kovac from the Department of Aeronautics is the Director of Imperial's Aerial Robotics Laboratory and is part of a team researching the future of robot construction and how drones could be used to build and repair future cities. The research team is studying examples from nature where organisms work as a group to construct their homes and hopes to use this insight to design algorithms that could allow drones to work together to construct buildings.



◀ Dr Felice Torrisi from the Department of Chemistry is part of a team that has created waterproof, wearable battery-like devices that can be woven directly into clothes. The materials can produce and store energy and could open up an entirely new set of applications, from harvesting and storing the energy released from our bodies to wearable health monitoring technology.

▼ Professor Sian Harding from the National Heart and Lung Institute is part of a research team that has built patches from human cells that can be 'stuck' onto a patient's heart following a heart attack. Once in place the patches not only provide structural support to the damaged heart muscle and help it pump more efficiently, but also release compounds that stimulate the heart cells to repair and regenerate.



▶ Professor Wendy Barclay and her team from the Department of Infectious Disease have used gene-editing techniques to stop the bird flu virus from spreading in chicken cells grown in the lab. The team found that by making a small edit to the DNA of chicken cells they can stop the virus from taking hold which could help to prevent future flu outbreaks in chickens.



WHERE COULD AN Imperial degree lead you?

A postgraduate degree from Imperial will provide you with an excellent foundation for your future. Explore how some of our 200,000-strong global alumni community are building on their Imperial education.



Johnny Ring



Richard Pardon



▲ **Roma Agrawal** (MSc General Structural Engineering 2005) spent six years working on The Shard, the tallest building in Western Europe, to design its foundations and iconic spire. Roma is also the author of *Built*, a collection of stories about some of the world's most famous buildings.

▲ **Muneeb Ahsan Malik** (MSc Concrete Structures and Business Management 2017) is an Infrastructure and Management Associate in the energy development sector in Pakistan. Muneeb's focus is on renewable energy sources and looking at new technology that can be used to improve energy and water efficiency.

▲ **Katie Lawrence** (MSc Advanced Computational Methods for Aeronautics, Flow Management and Fluid-Structure Interaction 2010) worked as a Race Operations Engineer for the McLaren Formula 1 team before taking over the preparation, management and running of their P1 GTR hybrid sports car test development programme. She is now a programme manager at Mercedes AMG High Performance Powertrains.

▲ **Tom McColm** (MSc Transport and Business Management 2017) is Change Design Manager for Transport for London (currently on secondment as Business Strategy Manager). He is responsible for producing practical initiatives to help modernise the London Underground.



As the UK's most innovative university, a natural career path for many Imperial graduates and students is using their creative and entrepreneurial talents to launch new ideas into the world.

◀ **Elena Dieckmann** (MA/MSc Innovation Design Engineering 2016, PhD Design Engineering Research) and **Ryan Robinson** (PhD Clinical Medicine Research 2016) have created a new insulation material from waste chicken feathers that is sustainable and biodegradable. The pair have gone on to develop a range of other product prototypes that make use of the natural properties of chicken feathers.

◀ **Inty Grønneberg** (PhD Design Engineering 2019) and **Robert Rouse** (MA/MSc Innovation Design Engineering 2017) are co-founders of Ichthion – an ocean-cleaning technology which attaches to ship hulls, autonomously removing pollution caused by the eight million tonnes of plastic waste which enters oceans every year.

▶ **Ryan Mario Yasin** (MEng Aeronautical Engineering 2015, MA/MSc Global Innovation Design 2017) has created a range of children's clothing that grows with the wearer to reduce waste. Using a specially engineered fabric which expands bi-directionally when stretched, the same garment can fit a child from nine months to four years.



◀ **Daniela Paredes** and **Olu-waseyi So-sanya** (MSc Innovation Design Engineering 2014) are the co-founders of Gravity Sketch, an immersive 3D design tool used to help create and communicate three dimensional ideas between designers and engineers.

Want to know more?

Delve into the data about what our graduates do on our Careers website at:

▶ www.imperial.ac.uk/careers/exploring-your-options/destinations/postgraduates



Master's courses by theme

Our interdisciplinary approach means our expertise often spans departmental boundaries. And so do our courses, so you may find a course of interest in an unexpected area of the College, or a way to follow your interests you never previously considered.



Themes in this guide

This guide contains Master's courses relevant to our global challenge, **engineering novel solutions**. To help you search your study options in this area, we've grouped our Master's courses together under the following themes:

- ▶ **Artificial intelligence, robotics and machine learning**
- ▶ **Big data, computational modelling and mathematical methods**
- ▶ **Biomedical science**
- ▶ **Biosciences**
- ▶ **Ecosystems and the environment**
- ▶ **Energy futures and resource management**
- ▶ **Entrepreneurship**
- ▶ **Fluid mechanics**
- ▶ **Infrastructure**
- ▶ **Material science and product innovation**
- ▶ **Medical technology**
- ▶ **Molecular science**
- ▶ **Policy and communication**

To learn more about all our Master's courses visit:

- ▶ www.imperial.ac.uk/study/pg/courses

Artificial intelligence, robotics and machine learning

- ▶ **The design and engineering of robotic technology and computer software that can learn and adapt to its environment without being programmed.**

Course	Department	Faculty	Entry requirements
MSc Advanced Computing	Computing	Engineering	First class Honours with a substantial computing component.
MSc Advanced Mechanical Engineering	Mechanical Engineering	Engineering	First class Honours in science or engineering.
MRes Advanced Molecular Synthesis	Chemistry	Natural Sciences	2:1 in chemistry or chemical engineering.
MSc Applied Computational Science and Engineering	Earth Science and Engineering	Engineering	2:1 in engineering or a science-based discipline.
MSc Artificial Intelligence	Computing	Engineering	First class Honours in mathematics, physics, engineering or other degree with substantial mathematics content.
MRes Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Biomedical Engineering streams: ▶ Medical Physics ▶ Neurotechnology	Bioengineering	Engineering	2:1 in an engineering, physical sciences or mathematical subject.
MSc Communications and Signal Processing	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MSc Computing streams: ▶ Artificial Intelligence and Machine Learning ▶ Management and Finance ▶ Security and Reliability ▶ Software Engineering ▶ Visual Computing and Robotics	Computing	Engineering	First class Honours with a substantial computing component. Applicants must provide Graduate Record Examination (GRE) scores for Quantitative Reasoning and Verbal Reasoning. See the Study website for details: www.imperial.ac.uk/study/pg/computing
MSc Computing Science	Computing	Engineering	First class Honours in any subject.
MSc Control Systems	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MA / MSc Global Innovation Design (GID)	Dyson School of Design Engineering	Engineering	2:1 in any subject. Applicants must show aptitude in design or technology-led innovation. In exceptional circumstances applicants without a degree qualification but with excellent professional experience or outstanding creative or technical abilities will be considered.
MSc Health Data Analytics and Machine Learning	School of Public Health	Medicine	2:1 in a science-based or medical degree or equivalent qualification in mathematics, statistics, epidemiology or biology. Applicants who do not meet the academic requirements but who have substantial relevant academic or professional experience may be admitted following completion of a Special Qualifying Exam (SQE).
MSc Human and Biological Robotics	Bioengineering	Engineering	See Biomedical Engineering above.
MA / MSc Innovation Design Engineering (IDE)	Dyson School of Design Engineering	Engineering	See Global Innovation Design above.
MRes Medical Robotics and Image Guided Intervention, delivered by the Institute of Global Health Innovation (IGHI)	Surgery and Cancer	Medicine	2:1 in science, engineering, biomedical science or medicine. Applicants with a lower degree qualification but at least three years' work experience may be considered.
MRes Neurotechnology	Bioengineering	Engineering	2:1 in an engineering or physical sciences subject. Applicants with a biological or medical sciences background may be considered if they can demonstrate substantial quantitative skills.
PG Cert / PG Dip / MSc Security and Resilience: Science and Technology	Physics	Natural Sciences	2:1 in a relevant engineering, mathematical or physical sciences subject.
MSc Statistics streams: ▶ Applied Statistics ▶ Biostatistics ▶ Data Science ▶ Statistical Finance ▶ Statistics ▶ Theory and Methods	Mathematics	Natural Sciences	2:1 in statistics, mathematics, engineering or physics.

Big data, computational modelling and mathematical methods

► The analysis of large data sets to reveal trends and patterns and make predictions.

Course	Department	Faculty	Entry requirements
MSc Advanced Aeronautical Engineering	Aeronautics	Engineering	2:1, preferably first class Honours, in aerospace or mechanical engineering with some experience of fluid and structural dynamics.
MSc Advanced Chemical Engineering	Chemical Engineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Advanced Chemical Engineering with Biotechnology	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Process Systems Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Structured Product Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Computational Methods for Aeronautics, Flow Management and Fluid-Structure Interaction	Aeronautics	Engineering	2:1 in engineering, physics, mathematics or computer science.
MSc Advanced Computing	Computing	Engineering	First class Honours with a substantial computing component.
MSc Advanced Materials for Sustainable Infrastructure	Civil and Environmental Engineering	Engineering	2:1 in an engineering or science-based discipline.
MSc Advanced Mechanical Engineering	Mechanical Engineering	Engineering	First class Honours in science or engineering.
MRes Advanced Molecular Synthesis	Chemistry	Natural Sciences	2:1 in chemistry or chemical engineering.
MSc Analogue and Digital Integrated Circuit Design	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MSc Applied Biosciences and Biotechnology	Life Sciences	Natural Sciences	2:1 in biochemistry, biology or an appropriate subject.
MSc Applied Computational Science and Engineering	Earth Science and Engineering	Engineering	2:1 in engineering or a science-based discipline.
MSc Applied Mathematics	Mathematics	Natural Sciences	2:1 in mathematics, applied mathematics, engineering or physics.
MRes Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Biomedical Engineering streams: ► Biomaterials ► Biomechanics ► Medical Physics ► Neurotechnology	Bioengineering	Engineering	2:1 in an engineering, physical sciences or mathematical subject.
MSc Bioinformatics and Theoretical Systems Biology	Life Sciences	Natural Sciences	2:1 in a biological, physical sciences, computational or mathematical subject.
MRes Chemical Biology and Bio-Entrepreneurship	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, biophysics, biochemistry or bioengineering. Additionally, your degree must include at least 50% physical science content.
MSc Communications and Signal Processing	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MRes Computational Methods in Ecology and Evolution	Life Sciences	Natural Sciences	2:1 in a life sciences or physical sciences subject. A suitable grounding in mathematics is desirable e.g. A-level grade B or higher.
MSc Computational Methods in Ecology and Evolution	Life Sciences	Natural Sciences	As above.
MSc Computing streams: ► Artificial Intelligence and Machine Learning ► Management and Finance ► Security and Reliability ► Software Engineering ► Visual Computing and Robotics	Computing	Engineering	First class Honours with a substantial computing component. Applicants must provide Graduate Record Examination (GRE) scores for Quantitative Reasoning and Verbal Reasoning. See the Study website for details: www.imperial.ac.uk/study/pg/computing
MSc Computing Science	Computing	Engineering	First class Honours in any subject.

Course	Department	Faculty	Entry requirements
MSc Concrete Structures	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Control Systems	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MSc Earthquake Engineering	Civil and Environmental Engineering	Engineering	See Concrete Structures above.
MSc Engineering Fluid Mechanics for the Offshore, Coastal and Built Environments	Civil and Environmental Engineering	Engineering	2:1 in science or engineering. A suitable grounding in mathematics required e.g. A-level grade B or higher.
MSc Environmental Engineering	Civil and Environmental Engineering	Engineering	See Concrete Structures above.
MSc Environmental Engineering and Business Management	Civil and Environmental Engineering	Engineering	See Concrete Structures above.
MSc Future Power Networks	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MSc General Structural Engineering	Civil and Environmental Engineering	Engineering	See Concrete Structures above.
MA / MSc Global Innovation Design (GID)	Dyson School of Design Engineering	Engineering	2:1 in any subject. Applicants must show aptitude in design or technology-led innovation. In exceptional circumstances applicants without a degree qualification but with excellent professional experience or outstanding creative or technical abilities will be considered.
MSc Human and Biological Robotics	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MSc Hydrology and Business Management	Civil and Environmental Engineering	Engineering	See Concrete Structures above.
MSc Hydrology and Water Resources Management	Civil and Environmental Engineering	Engineering	See Concrete Structures above.
MA / MSc Innovation Design Engineering (IDE)	Dyson School of Design Engineering	Engineering	See Global Innovation Design above.
MRes Medical Device Design and Entrepreneurship	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MRes Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
MRes Nanomaterials	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, materials, biochemistry, engineering or an appropriate subject.
MRes Neurotechnology	Bioengineering	Engineering	2:1 in an engineering or physical sciences subject. Applicants with a biological or medical sciences background may be considered if they can demonstrate substantial quantitative skills.
MSc Physics	Physics	Natural Sciences	First class Honours in physics with a strong mathematical content. Other scientific disciplines with significant physics and mathematics content will also be considered.
MSc Physics with Extended Research	Physics	Natural Sciences	As above.
MSc Physics with Nanophotonics	Physics	Natural Sciences	As above.
MSc Quantum Fields and Fundamental Forces	Physics	Natural Sciences	First class Honours in physics or mathematics with theoretical physics options.
MSc Statistics streams: ► Applied Statistics ► Biostatistics ► Data Science ► Statistical Finance ► Statistics ► Theory and Methods	Mathematics	Natural Sciences	2:1 in statistics, mathematics, engineering or physics.

Big data, computational modelling and mathematical methods (continued)

Course	Department	Faculty	Entry requirements
MSc Soil Mechanics	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Soil Mechanics and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics and Engineering Seismology	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics and Environmental Geotechnics	Civil and Environmental Engineering	Engineering	As above.
MSc Structural Steel Design	Civil and Environmental Engineering	Engineering	As above.
MRes Systems and Synthetic Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences, engineering, mathematical, life or biomedical sciences-based subject. A suitable grounding in mathematics is desirable e.g. A-level grade A or higher.
MSc Transport	Civil and Environmental Engineering	Engineering	See Soil Mechanics above.
MSc Transport and Business Management	Civil and Environmental Engineering	Engineering	See Soil Mechanics above.

Biomedical science

► **A highly interdisciplinary field of biology with practical applications in medicine, healthcare and laboratory diagnostics.**

Course	Department	Faculty	Entry requirements
MRes Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Biomedical Engineering streams: ► Biomaterials ► Biomechanics	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MRes Chemical Biology and Bio-Entrepreneurship	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, biophysics, biochemistry or bioengineering. Additionally, your degree must include at least 50% physical science content.
MRes Drug Discovery and Development: Multidisciplinary Science for Next Generation Therapeutics	Chemistry	Natural Sciences	2:1 in chemistry, pharmacy, physics, biochemistry, medicine or an appropriate subject.
MRes Medical Device Design and Entrepreneurship	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MRes Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.

Biosciences

► **The scientific study of living organisms (humans, plants and animals) – from molecules and cells to human health and disease.**

Course	Department	Faculty	Entry requirements
MSc Applied Biosciences and Biotechnology	Life Sciences	Natural Sciences	2:1 in biochemistry, biology or an appropriate subject.
MRes Molecular Plant and Microbial Sciences	Life Sciences	Natural Sciences	2:1 in a science subject.
MRes Systems and Synthetic Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences, engineering, mathematical, life or biomedical sciences-based subject. A suitable grounding in mathematics is desirable e.g. A-level grade A or higher.

Ecosystems and the environment

► **The interdisciplinary study of the environment and the solutions to the environmental problems we face.**

Course	Department	Faculty	Entry requirements
MSc Applied Computational Science and Engineering	Earth Science and Engineering	Engineering	2:1 in engineering or a science-based discipline.
MRes Catalysis: Chemistry and Engineering	Chemistry	Natural Sciences	2:1 in chemistry or engineering. A modest level of background chemistry or engineering knowledge is assumed.
MSc Earthquake Engineering	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Ecology, Evolution and Conservation	Life Sciences	Natural Sciences	2:1 in a science subject.
MRes Ecology, Evolution and Conservation Research	Life Sciences	Natural Sciences	2:1 in a science subject.
MRes Ecosystems and Environmental Change	Life Sciences	Natural Sciences	2:1 in a science subject. Applicants will ideally have experience in environmental research or policy and a strong interest in pursuing a research career.
MSc Engineering Fluid Mechanics for the Offshore, Coastal and Built Environments	Civil and Environmental Engineering	Engineering	2:1 in science or engineering. A suitable grounding in mathematics required e.g. A-level grade B or higher.
MSc Environmental Engineering	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Environmental Engineering and Business Management	Civil and Environmental Engineering	Engineering	As above.
MRes Green Chemistry, Energy and the Environment	Chemistry	Natural Sciences	2:1 in chemistry, engineering or a related subject.
MSc Hydrology and Business Management	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Hydrology and Water Resources Management	Civil and Environmental Engineering	Engineering	As above.
MRes Molecular Plant and Microbial Sciences	Life Sciences	Natural Sciences	2:1 in a science subject.

Continued on the next page

Ecosystems and the environment (continued)

Course		Department	Faculty	Entry requirements
MRes	Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
MSc	Petroleum Engineering	Earth Science and Engineering	Engineering	First class Honours in a science or engineering subject. Applicants with other qualifications but a minimum of three years' relevant industrial experience may be considered.
MSc	Petroleum Geoscience	Earth Science and Engineering	Engineering	2:1 in earth sciences. Applicants with closely related earth/environmental science degrees (such as physical geography or oceanography) or industrial experience will also be considered.
MSc	Soil Mechanics	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc	Soil Mechanics and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc	Soil Mechanics and Engineering Seismology	Civil and Environmental Engineering	Engineering	As above.
MSc	Soil Mechanics and Environmental Geotechnics	Civil and Environmental Engineering	Engineering	As above.
MSc	Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.
MSc	Transport	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc	Transport and Business Management	Civil and Environmental Engineering	Engineering	As above.
MRes	Tropical Forest Ecology	Life Sciences	Natural Sciences	2:1 in a science-based subject.

For a directory of courses by A–Z and by department, please see our Study website:

► www.imperial.ac.uk/study/pg/courses

Energy futures and resource management

► Exploring how sustainable technologies and the management of energy and natural resources can help to address global energy issues.

Course		Department	Faculty	Entry requirements
MSc	Advanced Chemical Engineering	Chemical Engineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc	Advanced Materials Science and Engineering	Materials	Engineering	2:1 in materials, mechanical/civil/chemical engineering, physics or chemistry.
MSc	Advanced Materials for Sustainable Infrastructure	Civil and Environmental Engineering	Engineering	2:1 in an engineering or science-based discipline.
MRes	Catalysis: Chemistry and Engineering	Chemistry	Natural Sciences	2:1 in chemistry or engineering. A modest level of background chemistry or engineering knowledge is assumed.
MSc	Engineering Fluid Mechanics for the Offshore, Coastal and Built Environments	Civil and Environmental Engineering	Engineering	2:1 in science or engineering. A suitable grounding in mathematics required e.g. A-level grade B or higher.
MSc	Future Power Networks	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MRes	Green Chemistry, Energy and the Environment	Chemistry	Natural Sciences	2:1 in chemistry, engineering or a related subject.
MSc	Metals and Energy Finance	Earth Science and Engineering	Engineering	2:1 in engineering, physical sciences or economics with a substantial mathematics component. Appropriate experience, while not essential, would be an advantage.
MRes	Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
MRes	Nanomaterials	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, materials, biochemistry, engineering or an appropriate subject.
MSc	Petroleum Engineering	Earth Science and Engineering	Engineering	First class Honours in science or engineering. Applicants with other qualifications but a minimum of three years' relevant industrial experience may also be considered.
MSc	Petroleum Geoscience	Earth Science and Engineering	Engineering	2:1 in earth sciences. Applicants with closely related earth/environmental science degrees (such as physical geography or oceanography) or industrial experience will also be considered.
MSc	Physics	Physics	Natural Sciences	First class Honours in physics with a strong mathematical content. Other scientific disciplines with significant physics and mathematics content will also be considered.
MSc	Physics with Extended Research	Physics	Natural Sciences	As above.
MSc	Physics with Nanophotonics	Physics	Natural Sciences	As above.
MRes	Plastic Electronic Materials	Physics	Natural Sciences	2:1 in physics, chemistry, chemical engineering, electrical engineering, materials science or a related subject.
MSc	Soil Mechanics	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc	Soil Mechanics and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc	Soil Mechanics and Engineering Seismology	Civil and Environmental Engineering	Engineering	As above.
MSc	Soil Mechanics and Environmental Geotechnics	Civil and Environmental Engineering	Engineering	As above.
MSc	Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.

Entrepreneurship

► Developing the knowledge and skills to design, launch and manage a new business or startup.

Course	Department	Faculty	Entry requirements
MSc Applied Computational Science and Engineering	Earth Science and Engineering	Engineering	2:1 in engineering or a science-based discipline.
MSc Environmental Engineering and Business Management	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MA / MSc Global Innovation Design (GID)	Dyson School of Design Engineering	Engineering	2:1 in any subject. Applicants must show aptitude in design or technology-led innovation. In exceptional circumstances applicants without a degree qualification but with excellent professional experience or outstanding creative or technical abilities will be considered.
MSc Hydrology and Business Management	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MA / MSc Innovation Design Engineering (IDE)	Dyson School of Design Engineering	Engineering	See Global Innovation Design above.
MRes Medical Device Design and Entrepreneurship	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Metals and Energy Finance	Earth Science and Engineering	Engineering	2:1 in engineering, physical sciences or economics with a substantial mathematics component. Appropriate experience, while not essential, would be an advantage.
MSc Soil Mechanics and Business Management	Civil and Environmental Engineering	Engineering	See Environmental Engineering and Business Management above.
MSc Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.
MSc Transport and Business Management	Civil and Environmental Engineering	Engineering	See Environmental Engineering and Business Management above.

Fluid mechanics

► The application of the laws of force and motion to liquids and gases.

Course	Department	Faculty	Entry requirements
MSc Advanced Aeronautical Engineering	Aeronautics	Engineering	2:1, preferably first class Honours, in aerospace or mechanical engineering with some experience of fluid and structural dynamics.
MSc Advanced Chemical Engineering	Chemical Engineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Advanced Chemical Engineering with Biotechnology	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Process Systems Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Structured Product Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Computational Methods for Aeronautics, Flow Management and Fluid-Structure Interaction	Aeronautics	Engineering	2:1 in engineering, physics, mathematics or computer science.

Course	Department	Faculty	Entry requirements
MSc Applied Computational Science and Engineering	Earth Science and Engineering	Engineering	2:1 in engineering or a science-based discipline.
MSc Advanced Mechanical Engineering	Mechanical Engineering	Engineering	First class Honours in science or engineering.
MSc Applied Mathematics	Mathematics	Natural Sciences	2:1 in mathematics, applied mathematics, engineering or physics.
MRes Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Biomedical Engineering streams: ► Biomaterials ► Biomechanics	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MSc Engineering Fluid Mechanics for the Offshore, Coastal and Built Environments	Civil and Environmental Engineering	Engineering	2:1 in science or engineering. A suitable grounding in mathematics required e.g. A-level grade B or higher.
MSc Environmental Engineering	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Environmental Engineering and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc Hydrology and Business Management	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Hydrology and Water Resources Management	Civil and Environmental Engineering	Engineering	As above.
MRes Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
MSc Physics	Physics	Natural Sciences	First class Honours in physics with a strong mathematical content. Other scientific disciplines with significant physics and mathematics content will also be considered.
MSc Physics with Extended Research	Physics	Natural Sciences	As above.
MSc Physics with Nanophotonics	Physics	Natural Sciences	As above.
MSc Quantum Fields and Fundamental Forces	Physics	Natural Sciences	First class Honours in physics or mathematics with theoretical physics options.
MSc Soil Mechanics	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Soil Mechanics and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics and Engineering Seismology	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics and Environmental Geotechnics	Civil and Environmental Engineering	Engineering	As above.
MSc Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.

Infrastructure

- **Creating the infrastructure that is key to our quality of life, from safe drinking water to the transport systems of tomorrow.**

Course	Department	Faculty	Entry requirements
MSc Advanced Materials Science and Engineering	Materials	Engineering	2:1 in materials, mechanical/civil/chemical engineering, physics or chemistry.
MSc Advanced Materials for Sustainable Infrastructure	Civil and Environmental Engineering	Engineering	2:1 in an engineering or science-based discipline.
MSc Communications and Signal Processing	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MSc Concrete Structures	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Earthquake Engineering	Civil and Environmental Engineering	Engineering	As above.
MSc Environmental Engineering	Civil and Environmental Engineering	Engineering	As above.
MSc Environmental Engineering and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc Future Power Networks	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MSc General Structural Engineering	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Hydrology and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc Hydrology and Water Resources Management	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics and Engineering Seismology	Civil and Environmental Engineering	Engineering	As above.
MSc Soil Mechanics and Environmental Geotechnics	Civil and Environmental Engineering	Engineering	As above.
MSc Structural Steel Design	Civil and Environmental Engineering	Engineering	As above.
MSc Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.
MSc Transport	Civil and Environmental Engineering	Engineering	See General Structural Engineering above.
MSc Transport and Business Management	Civil and Environmental Engineering	Engineering	See General Structural Engineering above.

Material science and product innovation

- **Understanding the physical and chemical properties of materials to create innovative new products.**

Course	Department	Faculty	Entry requirements
MSc Advanced Aeronautical Engineering	Aeronautics	Engineering	2:1, preferably first class Honours, in aerospace or mechanical engineering with some experience of fluid and structural dynamics.
MSc Advanced Chemical Engineering	Chemical Engineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Advanced Chemical Engineering with Biotechnology	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Process Systems Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Structured Product Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Materials Science and Engineering	Materials	Engineering	2:1 in materials, mechanical/civil/chemical engineering, physics or chemistry.
MSc Advanced Materials for Sustainable Infrastructure	Civil and Environmental Engineering	Engineering	2:1 in an engineering or science-based discipline.
MSc Advanced Mechanical Engineering	Mechanical Engineering	Engineering	First class Honours in science or engineering.
MRes Advanced Molecular Synthesis	Chemistry	Natural Sciences	2:1 in chemistry or chemical engineering.
MRes Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Biomedical Engineering streams: ► Biomaterials	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MRes Catalysis: Chemistry and Engineering	Chemistry	Natural Sciences	2:1 in chemistry or engineering. A modest level of background chemistry or engineering knowledge is assumed.
MRes Chemical Biology and Bio-Entrepreneurship	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, biophysics, biochemistry or bioengineering. Additionally, your degree must include at least 50% physical science content.
MSc Composites: the Science, Technology and Engineering Application of Advanced Composites	Aeronautics	Engineering	2:1 in aeronautical or mechanical engineering, materials science, physics or chemistry.
MSc Concrete Structures	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MRes Drug Discovery and Development: Multidisciplinary Science for Next Generation Therapeutics	Chemistry	Natural Sciences	2:1 in chemistry, pharmacy, physics, biochemistry, medicine or an appropriate subject.
MSc Earthquake Engineering	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc General Structural Engineering	Civil and Environmental Engineering	Engineering	As above.
MA / MSc Global Innovation Design (GID)	Dyson School of Design Engineering	Engineering	2:1 in any subject. Applicants must show aptitude in design or technology-led innovation. In exceptional circumstances applicants without a degree qualification but with excellent professional experience or outstanding creative or technical abilities will be considered.
MA / MSc Innovation Design Engineering (IDE)	Dyson School of Design Engineering	Engineering	As above.

Continued on the next page

Material science and product innovation (continued)

Course		Department	Faculty	Entry requirements
MRes	Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
MRes	Nanomaterials	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, materials, biochemistry, engineering or an appropriate subject.
MSc	Optics and Photonics	Physics	Natural Sciences	2:1 in physics, mathematics or electrical engineering. Evidence of appropriate qualifications may also be considered.
MRes	Photonics	Physics	Natural Sciences	First class Honours in physics, electrical or electronic engineering or a relevant scientific discipline.
MSc	Physics	Physics	Natural Sciences	First class Honours in physics with a strong mathematical content. Other scientific disciplines with significant physics and mathematics content will also be considered.
MSc	Physics with Extended Research	Physics	Natural Sciences	As above.
MSc	Physics with Nanophotonics	Physics	Natural Sciences	As above.
MRes	Plastic Electronic Materials	Physics	Natural Sciences	2:1 in physics, chemistry, chemical engineering, electrical engineering, materials science or a related subject.
MSc	Soil Mechanics	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc	Soil Mechanics and Business Management	Civil and Environmental Engineering	Engineering	As above.
MSc	Soil Mechanics and Engineering Seismology	Civil and Environmental Engineering	Engineering	As above.
MSc	Soil Mechanics and Environmental Geotechnics	Civil and Environmental Engineering	Engineering	As above.
MSc	Structural Steel Design	Civil and Environmental Engineering	Engineering	As above.
MSc	Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.

Medical technology

► Developing technology to diagnose, monitor and treat the diseases and conditions that affect us.

Course		Department	Faculty	Entry requirements
MSc	Advanced Materials Science and Engineering	Materials	Engineering	2:1 in materials, mechanical/civil/chemical engineering, physics or chemistry.
MSc	Advanced Mechanical Engineering	Mechanical Engineering	Engineering	First class Honours in science or engineering.
MSc	Analogue and Digital Integrated Circuit Design	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MRes	Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MRes	Bioimaging Sciences	Chemistry	Natural Sciences	2:1 in a science, technology, engineering or medicine subject.

Course		Department	Faculty	Entry requirements
MSc	Biomedical Engineering streams: ► Biomaterials ► Biomechanics ► Medical Physics ► Neurotechnology	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
PG Cert / PG Dip / MSc	Cardiovascular and Respiratory Healthcare	National Heart and Lung Institute (NHLI)	Medicine	2:1 in a relevant medical, biomedical or healthcare subject. Substantial relevant clinical experience may also be considered.
MRes	Chemical Biology and Bio-Entrepreneurship	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, biophysics, biochemistry or bioengineering. Additionally, your degree must include at least 50% physical science content.
MSc	Communications and Signal Processing	Electrical and Electronic Engineering	Engineering	First class Honours (minimum of 75% overall) in electrical/electronic engineering or a related subject with a substantial electrical/electronic engineering component.
MRes	Drug Discovery and Development: Multidisciplinary Science for Next Generation Therapeutics	Chemistry	Natural Sciences	2:1 in chemistry, pharmacy, physics, biochemistry, medicine or an appropriate subject.
PG Cert / MSc	Genes, Drugs and Stem Cells – Novel Therapies	NHLI	Medicine	2:1 in an appropriate subject.
PG Cert / PG Dip / MSc	Genomic Medicine	NHLI	Medicine	2:1 in a medical, biomedical or healthcare subject.
MA / MSc	Global Innovation Design (GID)	Dyson School of Design Engineering	Engineering	2:1 in any subject. Applicants must show aptitude in design or technology-led innovation. In exceptional circumstances applicants without a degree qualification but with excellent professional experience or outstanding creative or technical abilities will be considered.
MSc	Health Data Analytics and Machine Learning	School of Public Health	Medicine	2:1 in a science-based or medical degree or equivalent qualification in mathematics, statistics, epidemiology or biology. Applicants who do not meet the academic requirements but who have substantial relevant academic or professional experience may be admitted following completion of a Special Qualifying Exam (SQE).
MSc	Human and Biological Robotics	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MA / MSc	Innovation Design Engineering (IDE)	Dyson School of Design Engineering	Engineering	See Global Innovation Design above.
MRes	Medical Device Design and Entrepreneurship	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc	Medical Ultrasound (Echocardiography)	NHLI	Medicine	2:1 in medicine, biological sciences, engineering or a physical sciences subject.
MSc	Medical Ultrasound (Vascular)	NHLI	Medicine	As above.
MRes	Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
MRes	Nanomaterials	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, materials, biochemistry, engineering or an appropriate subject.
MRes	Neurotechnology	Bioengineering	Engineering	2:1 in an engineering or physical sciences subject. Applicants with a biological or medical sciences background may be considered if they can demonstrate substantial quantitative skills.
MSc	Optics and Photonics	Physics	Natural Sciences	2:1 in physics, mathematics or electrical engineering. Evidence of appropriate qualifications may also be considered.
MRes	Photonics	Physics	Natural Sciences	First class Honours in physics, electrical or electronic engineering or a relevant scientific discipline.
MSc	Physics	Physics	Natural Sciences	First class Honours in physics with a strong mathematical content. Other scientific disciplines with significant physics and mathematics content will also be considered.
MSc	Physics with Extended Research	Physics	Natural Sciences	As above.
MSc	Physics with Nanophotonics	Physics	Natural Sciences	As above.

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Medical technology (continued)

Course	Department	Faculty	Entry requirements
PG Cert / Surgical Innovation PG Dip / MSc	Surgery and Cancer	Medicine	2:1 in science, engineering, computing, healthcare or education. Applicants also require basic computing experience and three years' relevant experience.
MRes Systems and Synthetic Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences, engineering, mathematical, life or biomedical sciences-based subject. A suitable grounding in mathematics is desirable e.g. A-level grade A or higher.

Molecular science

- **The study of molecular materials, including our cells and DNA, and their application in the real world.**

Course	Department	Faculty	Entry requirements
MSc Advanced Chemical Engineering	Chemical Engineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc Advanced Chemical Engineering with Biotechnology	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Process Systems Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Chemical Engineering with Structured Product Engineering	Chemical Engineering	Engineering	As above.
MSc Advanced Materials Science and Engineering	Materials	Engineering	2:1 in materials, mechanical/civil/chemical engineering, physics or chemistry.
MSc Advanced Materials for Sustainable Infrastructure	Civil and Environmental Engineering	Engineering	2:1 in an engineering or science-based discipline.
MRes Advanced Molecular Synthesis	Chemistry	Natural Sciences	2:1 in chemistry or chemical engineering.
MSc Applied Biosciences and Biotechnology	Life Sciences	Natural Sciences	2:1 in biochemistry, biology or an appropriate subject.
MRes Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MRes Bioimaging Sciences	Chemistry	Natural Sciences	2:1 in a science, technology, engineering or medicine subject.
MSc Biomedical Engineering, with streams in: ► Biomaterials ► Biomechanics ► Medical Physics ► Neurotechnology	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MRes Biomedical Research stream: ► Respiratory and Cardiovascular Science	Metabolism, Digestion and Reproduction	Medicine	2:1 in an appropriate subject.
MRes Catalysis: Chemistry and Engineering	Chemistry	Natural Sciences	2:1 in chemistry or engineering. A modest level of background chemistry or engineering knowledge is assumed.
MRes Chemical Biology and Bio-Entrepreneurship	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, biophysics, biochemistry or bioengineering. Additionally, your degree must include at least 50% physical science content.
MRes Drug Discovery and Development: Multidisciplinary Science for Next Generation Therapeutics	Chemistry	Natural Sciences	2:1 in chemistry, pharmacy, physics, biochemistry, medicine or an appropriate subject.
PG Cert / Genes, Drugs and Stem Cells – Novel Therapies MSc	National Heart and Lung Institute (NHLI)	Medicine	2:1 in an appropriate subject.
PG Cert / Genomic Medicine PG Dip / MSc	NHLI	Medicine	2:1 in a medical, biomedical or healthcare subject.

Course	Department	Faculty	Entry requirements
MRes Green Chemistry, Energy and the Environment	Chemistry	Natural Sciences	2:1 in chemistry, engineering or a related subject.
MSc Human and Biological Robotics	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MRes Medical Device Design and Entrepreneurship	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MRes Molecular and Cellular Biosciences	Life Sciences	Natural Sciences	2:1 in a biosciences-based subject. Applicants also need to demonstrate a commitment to a career in biosciences research.
MRes Molecular Plant and Microbial Sciences	Life Sciences	Natural Sciences	2:1 in a science subject.
MRes Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Engineering	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
MRes Nanomaterials	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, materials, biochemistry, engineering or an appropriate subject.
MRes Neurotechnology	Bioengineering	Engineering	2:1 in an engineering or physical sciences subject. Applicants with a biological or medical sciences background may be considered if they can demonstrate substantial quantitative skills.
MRes Photonics	Physics	Natural Sciences	First class Honours in physics, electrical or electronic engineering or a relevant scientific discipline.
MSc Physics	Physics	Natural Sciences	First class Honours in physics with a strong mathematical content. Other scientific disciplines with significant physics and mathematics content will also be considered.
MSc Physics with Extended Research	Physics	Natural Sciences	As above.
MSc Physics with Nanophotonics	Physics	Natural Sciences	As above.
MSc Physics with Quantum Dynamics	Physics	Natural Sciences	As above.
MRes Plastic Electronic Materials	Physics	Natural Sciences	2:1 in physics, chemistry, chemical engineering, electrical engineering, materials science or a related subject.
MRes Structural Molecular Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences-based subject.
MRes Systems and Synthetic Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences, engineering, mathematical, life or biomedical sciences-based subject. A suitable grounding in mathematics is desirable e.g. A-level grade A or higher.

Policy and communication

- **Exploring how effective communication strategies and cultural policies can help address global and regional problems.**

Course	Department	Faculty	Entry requirements
MSc Ecological Applications	Life Sciences	Natural Sciences	2:1 in a science subject.
MSc Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.
MSc Transport	Civil and Environmental Engineering	Engineering	2:1 in civil engineering, natural sciences, earth sciences or other numerate disciplines. A suitable grounding in mathematics required e.g. A-level grade B or higher. Relevant industrial/professional experience may also be considered.
MSc Transport and Business Management	Civil and Environmental Engineering	Engineering	As above.



Doctoral courses

PhD (traditional route)

An intensive academic qualification involving a series of progression milestones which you must meet along the way. Find out more and check whether funded studentships are available at:

► www.imperial.ac.uk/study/pg/courses/doctoral-courses/phd

Course	Department	Faculty	Entry requirements
PhD Advanced Characterisation of Material, offered by the Imperial College London–UCL EPSRC Centre for Doctoral Training (CDT)	Materials	Engineering	www.cdt-acm.org/how-to-apply
PhD Aeronautics Research	Aeronautics	Engineering	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
PhD Artificial Intelligence for Healthcare, funded by the UKRI Centre for Doctoral Training (CDT)	Various	Engineering	ai4health.io
PhD Bioengineering Research	Bioengineering	Engineering	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
PhD Carbonates and Carbon Research	Chemical Engineering	Engineering	As above.
PhD Cellular Bionics, offered by the Leverhulme Centre for Cellular Bionics	Chemistry	Natural Sciences	www.imperial.ac.uk/leverhulme-centre-cellular-bionics
PhD Chemical Engineering Research	Chemical Engineering	Engineering	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
PhD Chemistry Research	Chemistry	Natural Sciences	As above.
PhD Civil Engineering Research	Civil and Environmental Engineering	Engineering	As above.
PhD Computing Research	Computing	Engineering	As above.
PhD Design Engineering Research	Dyson School of Design Engineering	Engineering	As above.
PhD Earth Science and Engineering Research	Earth Science and Engineering	Engineering	As above.
PhD Electrical Engineering Research	Electrical and Electronic Engineering	Engineering	As above.

Course	Department	Faculty	Entry requirements
PhD Life Sciences Research	Life Sciences	Natural Sciences	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
PhD Materials Research	Materials	Engineering	As above.
PhD Mathematics Research	Mathematics	Natural Sciences	As above.
PhD Mechanical Engineering Research	Mechanical Engineering	Engineering	As above.
PhD Medical Research Council Studentships, offered by Imperial College Medical Research Council Doctoral Training Partnership (DTP)	Various	Various	www.imperial.ac.uk/mrc-dtp-studentships
PhD Modern Statistics and Statistical Machine Learning, offered by the EPSRC Centre for Doctoral Training (CDT)	Mathematics	Natural Sciences	www.statml.io
PhD Nuclear Energy Futures, offered by the EPSRC Centre for Doctoral Training (CDT)	Materials	Engineering	www.imperial.ac.uk/nuclear-cdt
PhD Petroleum Engineering Research	Earth Science and Engineering	Engineering	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
PhD Physics Research	Physics	Natural Sciences	As above.

Integrated PhD (1 + 3)

Integrated PhD courses typically consist of a one-year Master's course (MSc or MRes) which leads straight into a three-year PhD.

The following opportunities are covered by funded studentships, which are available to Home students, and currently to EU students who meet certain eligibility criteria. Self-funded Overseas applicants should enquire directly to the relevant centre for information on eligibility.

► www.imperial.ac.uk/study/pg/courses/doctoral-courses/integrated-phd

Course	Department	Faculty	Entry requirements
MRes + PhD Advanced Molecular Synthesis, offered by the EPSRC Centre for Doctoral Training (CDT) in Next Generation Synthesis and Reaction Technology	Chemistry	Natural Sciences	www.imperial.ac.uk/next-generation-synthesis-reaction-technology
MRes + PhD BioDesign Engineering, offered by the EPSRC Centre for Doctoral Training (CDT)	Life Sciences	Natural Sciences	www.imperial.ac.uk/synthetic-biology/cdt-biodesign-engineering
MRes + PhD Chemical Biology: Innovation in Life Sciences, offered by the EPSRC Institute of Chemical Biology Centre for Doctoral Training (CDT)	Chemistry	Natural Sciences	www.imperial.ac.uk/chemical-biology/cdt
MRes or MSc + PhD Medical Research Council Studentships, offered by Imperial College Medical Research Council Doctoral Training Partnership (DTP)	Various	Various	www.imperial.ac.uk/mrc-dtp-studentships
MRes + PhD Photonics, available through several EPSRC-funded Doctoral Training Partnerships (DTPs) in which Photonics research group members are involved	Physics	Natural Sciences	www.imperial.ac.uk/photonics/postgraduate-training/phd-opportunities-in-photonics

Doctoral courses continued on the next page

Professional Doctorate

For working professionals who are looking to make a unique contribution to their area of practice.

► www.imperial.ac.uk/study/pg/courses/doctoral-courses/professional-doctorate

Course	Department	Faculty	Entry requirements
MD(Res) Bioengineering Research	Bioengineering	Engineering	For medically qualified professionals. Applicants should normally be GMC registered. Please gain support from a supervisor before applying.
MD(Res) Mechanical Engineering Research	Mechanical Engineering	Engineering	2:1 Honours degree in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.

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► www.imperial.ac.uk/study/pg/courses

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