Imperial College London

GLOBAL CHALLENGE:

Leading the data revolution

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

Find your way to Imperial

You can use this guide to explore our Master's and Doctoral courses relating to our global challenge of **leading the data revolution**. This is one of Imperial's four global challenges. It brings together our expertise – in areas ranging from big data to robotics – to transform how society thinks about and uses information.

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 the rise of cybercriminals and maintaining data security.

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 16–17 to discover your options relating to leading the data revolution.

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 how we harness the massive potential of big data while maintaining data security and privacy.

Our work to transform how society thinks about and uses information requires a better understanding of how we can harness the ever-increasing amount of data generated by society. We also need to understand the difficulties and risks involved in producing, analysing and sharing this information. We are guided in this by a number of open questions:

What if we could...

- measure everything?
- improve our understanding of natural laws through new or large data sets?
- predict and avoid financial crises associated with overheating of the economy?

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 Jennifer Quint from the National Heart and Lung Institute is leading a research project that analyses the data on hospital admissions for people with lung disease. The project will help medical practitioners to better understand and improve the patient journey.

◥ Professor of Affective and Behavioural Computing, Maja Pantic, is the Imperial lead in a European research partnership investigating whether technology developed for a cartoon-like robot called Zeno could improve learning and emotional understanding in children with autism. The robot's pre-programmed facial expressions and gestures are believed to be the key to helping young children with autism learn the different facial expressions and gestures people use to convey their emotions.

◀ Dr Kirill Veselkov from the Department of Surgery and Cancer has worked with the Vodafone Foundation to carry out research into the potential data processing power of idling smartphones. By downloading an app and running it at night while their phones are on charge, people can donate some of their phone's unused processing power to crunch data and help speed up cancer research while they sleep.

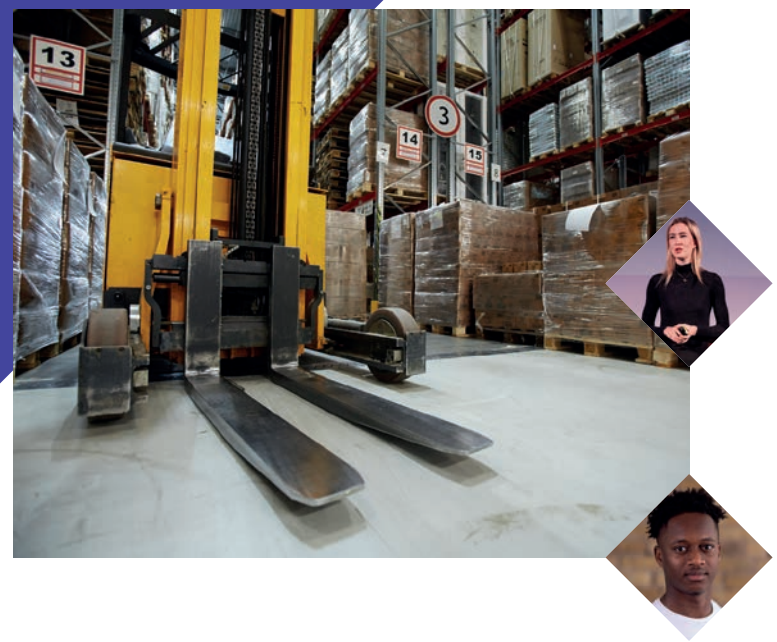
◀ Professor Ara Darzi from Imperial's Institute of Global Health Innovation led a recent study which suggests that a combination of out-dated computer systems, lack of investment, and a deficit of skills and awareness in cyber security is placing NHS hospitals at risk of cyber-attacks. The report suggests the NHS must take urgent steps to defend against potential threats to patient data and safety.

◀ Researchers from Imperial, led by Dr Aldo Faisal from the Department of Bioengineering, have developed an artificial intelligence system that could help treat patients with sepsis. The system 'learnt' the best treatment strategy for a patient by analysing the records of about 100,000 hospital patients in intensive care units and every single doctor's decisions affecting them.

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.



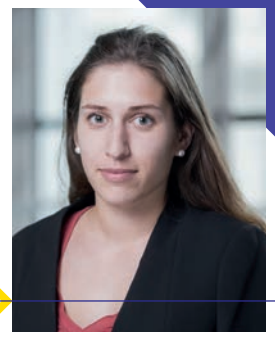
As the UK's most innovative university, a natural career path for many Imperial graduates and students is using their creative and entrepreneurial talents to launch new ideas into the world.

Dr Niccolò Corsini (MSc + PhD Theory and Simulation of Materials 2015) is the founder of Sonodot, a smart warehousing startup that combines a centimetre-accurate ultrasonic indoor positioning system with a spatial intelligence platform to help factory managers track assets and optimise operations.

Charlotte McIntyre (PhD Clinical Medicine Research) is designing a machine learning system called AI Thyroid to help doctors more accurately predict the likelihood of thyroid cancer. The artificial intelligence software is designed to learn from patient outcomes, improving its accuracy over time.

Ambrose Cooke (MSc Advanced Mechanical Engineering 2016) is the co-founder of Fanbytes, an advertising platform which has helped brands including Disney, Apple Music and Deliveroo to identify social media influencers. Fanbytes uses an algorithm to determine the best influencers for brands to use for their advertising campaigns based on their target audience. Brands can also track the performance of their campaign via the live analytics platform which algorithmically optimises their campaign over time.

Raunaq Bose, Leslie Nooteboom and **Maya Pindeus** (all MA/MSc Innovation Design Engineering 2017) are founders of Humanising Autonomy, a data-driven platform that allows automated vehicles to understand and predict pedestrian intent across cultures to improve decision making, safety, societal acceptance and deployment in urban environments.

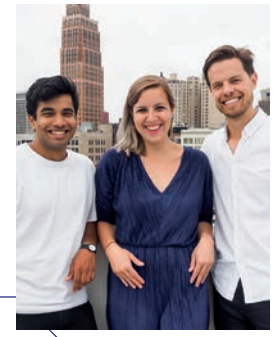


Christina Lefkothea Tatli (MSc Business Analytics 2017) chose her Master's course after recognising that big data is becoming an effective basis of competition in almost every industry. It proved a wise decision – she now works as a Data Scientist for Deliveroo.

Victor Lopes (MEng Chemical Engineering 2012, MSc Finance and Accounting 2016) began his career as a Chemical Engineer, but now works as a software tester for the professional services firm Deloitte. Since joining the company, he has introduced better and more effective data-driven reporting to internal and external stakeholders.

Natalie Jabangwe (Executive MBA 2012) is the founder of EcoCash, Africa's largest mobile-phone-based financial services company, which allows users to deposit, transfer and spend money directly from a mobile handset. EcoCash now has over eight million registered customers. Natalie is also an advisor to the UN Secretary General on global finance.

Rishi Nalin Kumar (PhD Mathematics Research 2017) is the founder of Decide Together, a data science consultancy based in London, where he helps large companies to scale their data science practices. Rishi previously worked as the Data Science Practice Lead for Spotify where he focused on analysing user behaviours to develop more personalised features.



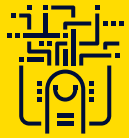
Want to know more?

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, **leading the data revolution**. 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**
- **Business**
- **Ecosystems and the environment**
- **Energy futures and resource management**
- **Entrepreneurship**
- **Fluid mechanics**
- **Material science and product innovation**
- **Medical technology**
- **Molecular science**

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
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.
MSc	Biomedical Engineering pathways: • Medical Physics • Neurotechnology	Bioengineering	Engineering	2:1 in an engineering, physical sciences or mathematical subject.
MSc	Business Analytics	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/msc-programmes**
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	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.
MSc	Mathematics and Finance	Mathematics	Natural Sciences	2:1 in mathematics, applied mathematics or physics.
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.

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

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

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 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.
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.
MSc	Bioinformatics and Theoretical Systems Biology	Life Sciences	Natural Sciences	2:1 in a biological, physical sciences, computational or mathematical subject.
MSc	Business Analytics	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/msc-programmes**
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.
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	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.
PG Cert / PG Dip / MSc	Genomic Medicine	National Heart and Lung Institute (NHLI)	Medicine	2:1 in a medical, biomedical or healthcare subject.
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	Investment and Wealth Management	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/msc-programmes**
MRes	Mathematics and Finance	Mathematics	Natural Sciences	2:1 in mathematics, applied mathematics or physics.
MRes	Nanomaterials	Chemistry	Natural Sciences	2:1 in chemistry, physics, mathematics, materials, biochemistry, engineering or an appropriate subject.
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	Risk Management and Financial Engineering	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/msc-programmes**
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.
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	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.

Biomedical science

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

Course		Department	Faculty	Entry requirements
MRes	Biomedical Research stream: ▸ Data Science	Metabolism, Digestion and Reproduction	Medicine	2:1 in an appropriate subject.
MRes	Cancer Biology stream: ▸ Cancer Informatics	Surgery and Cancer	Medicine	2:1 in an appropriate 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.
PG Dip	Digital Health Leadership	Surgery and Cancer	Medicine	2:2 in a relevant subject. Non-academic criteria also apply relating to your professional experience. See **www.imperial.ac.uk/study/pg/medicine/digital-health-leadership**
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).
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.

Business

The study of the principles of business, management, and economics.

Course		Department	Faculty	Entry requirements
MBA	Executive MBA	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/mba-programmes**
MBA	Full-time MBA	Imperial College Business School		As above.
MBA	Global Online MBA	Imperial College Business School		As above.
MBA	Weekend MBA	Imperial College Business School		As above.
MSc	Business Analytics	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/msc-programmes**
MSc	Climate Change, Management and Finance, delivered in partnership with the Grantham Institute – Climate Change and the Environment	Imperial College Business School		As above.
MSc	Economics and Strategy for Business	Imperial College Business School		As above.
MSc	Finance	Imperial College Business School		As above.
MSc	Finance and Accounting	Imperial College Business School		As above.
MSc	Financial Technology	Imperial College Business School		As above.
MSc	Innovation, Entrepreneurship and Management	Imperial College Business School		As above.
MSc	International Health Management	Imperial College Business School		As above.
MSc	International Management	Imperial College Business School		As above.
MSc	Investment and Wealth Management	Imperial College Business School		As above.
MSc	Management	Imperial College Business School		As above.
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	Risk Management and Financial Engineering	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/msc-programmes**
MSc	Strategic Marketing	Imperial College Business School		As above.

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	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	Ecological Applications	Life Sciences	Natural Sciences	2:1 in a science 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	See Environmental Engineering, page 10.
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	Transport	Civil and Environmental Engineering	Engineering	As above.

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 Materials for Sustainable Infrastructure	Civil and Environmental Engineering	Engineering	2:1 in an engineering or science-based discipline.
MSc	Applied Computational Science and Engineering	Earth Science and Engineering	Engineering	2:1 in engineering or a science-based discipline.
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	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	Hydrology and Business Management	Civil and Environmental Engineering	Engineering	See Environmental Engineering above.
MSc	Hydrology and Water Resources Management	Civil and Environmental Engineering	Engineering	See Environmental Engineering above.
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	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	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	Innovation, Entrepreneurship and Management	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/msc-programmes**
MSc	Mathematics and Finance	Mathematics	Natural Sciences	2:1 in mathematics, applied mathematics or physics.
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	Sustainable Energy Futures, delivered by the Energy Futures Lab	Mechanical Engineering	Engineering	2:1 in engineering or physical sciences.

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

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

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	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.
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.
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.

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 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.
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	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	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.

Medical technology

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

Course		Department	Faculty	Entry requirements
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.
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.

Molecular science

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

Course		Department	Faculty	Entry requirements
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	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	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	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.

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	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	Cellular Bionics, offered within 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	Electrical Engineering Research	Electrical and Electronic Engineering	Engineering	As above.
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	Mathematics Research	Mathematics	Natural Sciences	As above.
PhD	Modern Statistics and Statistical Machine Learning, offered by the EPSRC Centre for Doctoral Training (CDT)	Mathematics	Natural Sciences	**www.statml.io**
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	Physics Research	Physics	Natural Sciences	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.

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 + PhD	Doctoral Programme	Imperial College Business School		**www.imperial.ac.uk/business-school/programmes/doctoral-degree**
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**

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.

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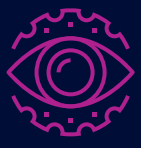
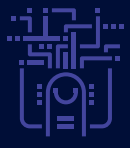
Discovery and the natural world



Engineering novel solutions

Health and wellbeing



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