

Imperial College
London

Postgraduate courses

2019–2020 ENTRY



Global challenge:
Health and wellbeing



Find your way to Imperial

You can use this guide to explore our Master's and Doctoral courses relating to our global challenge of **health and wellbeing**. This is one of four global challenges, which unites our expertise – in areas ranging from clinical medicine to bioengineering – towards our goal of improving the health of all in society.

Our global challenges guide the way we work together across subject boundaries to find solutions to some of humanity's biggest problems – like antibiotic-resistant diseases, regional lack of sanitation, cancer and HIV/AIDS.

Find the right course for you

We're building a community of problem solvers who can bring their diverse talents to bear in addressing 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 healthier 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 health and wellbeing.



8th

best university in the world

Times Higher Education World University Rankings 2018

1st

in the UK for graduate employability

The Guardian University Guide 2019

4th

(joint) in the world for Clinical, Pre-clinical and Health

Times Higher Education World University Rankings by Subject 2018

1st

(joint) for Public Health, Health Services and Primary Care Research

Research Excellence Framework 2014

No.1

Located in the world's best student city

QS Best Student Cities 2018

1st

Most innovative university in the UK (2nd in Europe)

Reuters' Europe's Most Innovative Universities 2018





A COMMUNITY like no other

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 planning for a pandemic, preventing illness, and developing new drugs and treatments.

Our work towards a healthier world relies on both the creation and improvement of treatments and prevention strategies, and the delivery of high quality, low-cost, sustainable healthcare. We're guided in this work by a number of open questions:

What if we could...

- ▶ eliminate the threat of infection caused by antimicrobial resistance?
- ▶ predict and prevent illness across a lifetime?
- ▶ reduce the burden of chronic disease?
- ▶ create a universal model to deliver affordable healthcare worldwide?

Making an impact

This 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.

Read more about the work we're already doing to address these challenges.



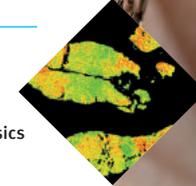
▲ Dr Cristina Lo Celso from the Department of Life Sciences has developed a new imaging technique that has enabled a greater understanding of what different cell types do when leukaemia develops – leading to discoveries that could improve bone marrow transplantation and treatment for leukaemia patients.

▼ Professor Paul Matthews in the Department of Medicine is leading a new multidisciplinary UK Dementia Research Institute centre at Imperial. The centre, which will be housed at our new White City Campus from 2019, will harness Imperial's technology and data expertise to address the challenges posed by dementia.

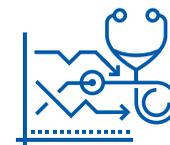


▶ A new imaging technology, developed by a team of scientists led by Imperial's Department of Physics and the Department of Surgery and Cancer, can grade tumour biopsies. The technology uses invisible infrared light to map out the chemical changes in tissue that could signal the onset of cancer and allows doctors to reliably measure the disease's progression.

Image: H. Amrانيا et al.



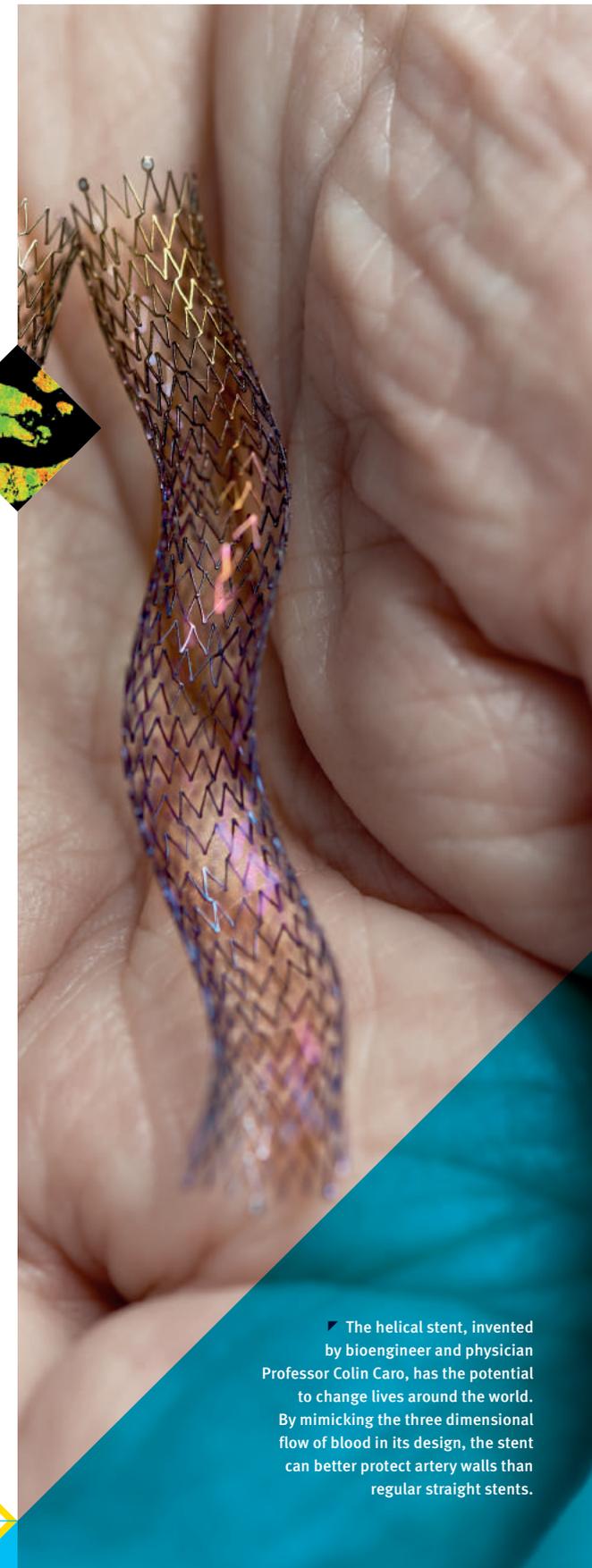
▼ Dr Robin Carhart-Harris from the Department of Medicine is exploring the therapeutic potential of psychedelic drugs for people with depression.



◀ A statistical tool created by researchers from Imperial's School of Public Health and Imperial

College Business School can calculate the health and social care costs of air pollution. According to simulations based on real world data from England reducing fine particulate matter could help reduce new cases of disease and save money in NHS and social care costs.

▶ The helical stent, invented by bioengineer and physician Professor Colin Caro, has the potential to change lives around the world. By mimicking the three dimensional flow of blood in its design, the stent can better protect artery walls than regular straight stents.





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 Ana Luisa Neves** (PhD Clinical Medicine Research 2018) and **Andrea Rodriguez-Martinez** (MRes Biomedical Research 2014, PhD Clinical Medicine Research 2018) co-founded Momoby and designed a low-cost, pocket-sized device that can test for diseases known to impact on pregnancy using a single drop of blood. The device aims to bring vital prenatal care to women living in isolated regions in developing countries.



▶ **Dr Natalie Shenker** (MSc Reproductive and Developmental Biology 2010, PhD Epigenetics Unit 2015) launched the Hearts Milk Bank, which provides donor milk to sick and premature babies, after collaborating with NHS milk bank services during her PhD.

Image: Nesta

▶ **Graham Peyton and Hamid Soleimani** (PhD Bioengineering Research 2017 and 2018 respectively) launched Microsonix in 2016. Their first innovation, SonoPen, is a miniaturised ultrasound device. The low-cost, low-power handheld scanner consists of a single microchip that can connect to tablets or smartphones.

Image: Microsonix



◀ **Christina Petersen** (MA/MSc Innovation Design Engineering 2016) is the inventor of Lys, a small, wearable device which tracks the kind of light the wearer is exposed to throughout the day and provides targets for the level of healthy light needed to balance natural circadian rhythms.

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



▲ **Hildur Einarsdóttir** (MSc Bioengineering 2006) is the Vice-President of Research and Development Strategy and Operations at Össur, one of the world's largest designers and manufacturers of prosthetic limbs.



▲ **Juan Camilo Vargas Zambrano** (MSc International Health Management 2015) studied medicine and epidemiology before joining Imperial College Business School. After graduating, Juan secured a position on the Future Leader Programme at global healthcare company, GSK, where he now works as a Vaccines Medical Advisor.



▲ **Dr Henrietta Bowden-Jones** (MD Neuroscience and Mental Health 2005) is Director and founder of the National Problem Gambling Clinic in London, the only such NHS treatment centre in the UK. She's also the current President of the Medical Women's Federation.



▲ **Dr Jake Dunning** (PhD Clinical Medicine Research 2013) is a consultant in infectious diseases for Public Health England. He's responsible for conducting outbreak research and ensuring that health services can identify and safely manage diseases such as Ebola, influenza and Zika.





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 courses relevant to our global challenge, **health and wellbeing**. 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**
- ▶ **Entrepreneurship**
- ▶ **Material science and product innovation**
- ▶ **Medical technology**
- ▶ **Molecular science**
- ▶ **Policy and communication**
- ▶ **Practical and clinical medicine**

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 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 pathways: ▶ Biomechanics ▶ Medical Physics ▶ Neurotechnology	Bioengineering	Engineering	2:1 in an engineering, physical sciences or mathematical subject.
MRes Chemical Biology: Multidisciplinary Physical Scientists for Next Generation Biological, Biomedical and Pharmaceutical Research and Development	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.
MSc Human and Biological Robotics	Bioengineering	Engineering	2:1 in an engineering, physical sciences 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 Medical Robotics and Image Guided Intervention	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 science subject. Applicants with a biological or medical sciences background may be considered if they can demonstrate substantial quantitative skills.

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 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 science, mathematical, or life/biomedical sciences subject.
MSc Bioinformatics and Theoretical Systems Biology	Life Sciences	Natural Sciences	2:1 in a biological, physical sciences, computational or mathematical subject.
MRes Biomedical Research streams: ► Data Science ► Epidemiology, Evolution and Control of Infectious Diseases	Surgery and Cancer	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: Multidisciplinary Physical Scientists for Next Generation Biological, Biomedical and Pharmaceutical Research and Development	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 Epidemiology	School of Public Health	Medicine	2:1 in mathematics, statistics, medicine (human and veterinary) or biological sciences.
MSc Functional Omics	Medicine	Medicine	2:1 in a chemistry, biochemistry, physiology, or a related biomedical science subject. Applicants without the relevant academic requirements but who have substantial relevant industry experience may be considered following completion of a 'Special Qualifying Exam' (SQE).
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 Honours degree 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.
MRes Medical Device Design and Entrepreneurship	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
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 science 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.
MRes Systems and Synthetic Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences, engineering, mathematical, life or biomedical sciences-based subject.

Biomedical science

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

Course	Department	Faculty	Entry requirements
PG Cert / Allergy PG Dip / MSc	Medicine	Medicine	2:1 in a healthcare related subject, nursing, dietetics, immunology, physiology or biomedical science.
MRes Biomedical Research streams: ► Anaesthetics, Pain Medicine and Intensive Care ► Bacterial Pathogenesis and Infection ► Biomedical Research ► Epidemiology, Evolution and Control of Infectious Diseases ► Microbiome in Health and Disease ► Molecular Basis of Human Disease ► Respiratory and Cardiovascular Science	Surgery and Cancer	Medicine	2:1 in an appropriate subject.
MRes Cancer Biology stream: ► Cancer Biology	Surgery and Cancer	Medicine	2:1 in an appropriate 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: Multidisciplinary Physical Scientists for Next Generation Biological, Biomedical and Pharmaceutical Research and Development	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.
MSc Epidemiology	School of Public Health	Medicine	2:1 in mathematics, statistics, medicine (human and veterinary) or biological sciences.
MRes Experimental Neuroscience	Medicine	Medicine	2:1 in an appropriate subject.
MSc Functional Omics	Medicine	Medicine	2:1 in a chemistry, biochemistry, physiology, or a related biomedical science subject. Applicants without the relevant academic requirements but who have substantial relevant industry experience may be considered following completion of a 'Special Qualifying Exam' (SQE).
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.
MSc Human Molecular Genetics	Medicine	Medicine	2:1 in biochemical sciences, genetics or another science-based subject. Mature applicants with relevant academic or professional experience will also be considered.
MSc Immunology	Medicine	Medicine	2:2 in an appropriate science subject, medicine, dentistry or veterinary science.
MSc Medical Ultrasound	NHLI	Medicine	2:1 in medicine, biological sciences, engineering or a physical sciences subject.
MSc Medical Ultrasound (Echocardiography)	NHLI	Medicine	As above.
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.
MSc Molecular Medicine	Medicine	Medicine	2:2 in biological science, medicine or veterinary science.
MRes Molecular Science and Engineering, delivered by the Institute for Molecular Science and Engineering (IMSE)	Chemical Engineering	Natural Sciences	2:1 in engineering or physical sciences with a suitable grounding in mathematics.
PG Cert / MSc Reproductive and Developmental Biology	Surgery and Cancer	Medicine	2:1 in biological science, medicine or veterinary science.
PG Dip / Med Surgical Education	Surgery and Cancer	Medicine	2:1 in science, engineering, computing, healthcare or education. Applicants also require basic computing experience and three years' relevant experience.
PG Cert / PG Dip / MSc Surgical Innovation	Surgery and Cancer	Medicine	As above.

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
PG Cert / Allergy PG Dip / MSc	Medicine	Medicine	2:1 in a healthcare-related subject, nursing, dietetics, immunology, physiology or biomedical science.
MSc Applied Biosciences and Biotechnology	Life Sciences	Natural Sciences	2:1 in biochemistry, biology or an appropriate subject.
MSc Human Molecular Genetics	Medicine	Medicine	2:1 in biochemical sciences, genetics or another science-based subject. Mature applicants with relevant academic or professional experience will also be considered.
MSc Immunology	Medicine	Medicine	2:2 in an appropriate science subject, medicine, dentistry or veterinary science.
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.
MSc Molecular Biology and Pathology of Viruses	Medicine	Medicine	2:2 in biological science, medicine or veterinary science.
MSc Molecular Medicine	Medicine	Medicine	2:2 in biological science, medicine or veterinary science.
MRes Systems and Synthetic Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences, engineering, mathematical, life or biomedical sciences-based subject.

Ecosystems and the environment

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

Course	Department	Faculty	Entry requirements
MRes Controlled Quantum Dynamics	Physics	Natural Sciences	First class Honours in physics. Other scientific disciplines, including engineering, chemistry and mathematics, may also be considered.
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 A–B. 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	As above.
MSc Hydrology and Water Resources Management	Civil and Environmental Engineering	Engineering	As above.
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.

Entrepreneurship

- ▶ **Developing the knowledge and skills to design, launch and manage a new business or start-up.**

Course	Department	Faculty	Entry requirements
MRes Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.
MSc International Health Management	Imperial College Business School		www.imperial.ac.uk/business-school/programmes/msc-programmes
MRes Medical Device Design and Entrepreneurship	Bioengineering	Engineering	2:1 in an engineering, physical sciences, mathematical, life sciences or biomedical sciences subject.

Material science and product innovation

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

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 pathway: ▶ Biomaterials	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MRes Chemical Biology: Multidisciplinary Physical Scientists for Next Generation Biological, Biomedical and Pharmaceutical Research and Development	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 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.

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

▶ www.imperial.ac.uk/study/pg/courses

Medical technology

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

Course	Department	Faculty	Entry requirements
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 science, mathematical, or life/biomedical sciences subject.
MRes Bioimaging Sciences	Chemistry	Natural Sciences	2:1 in a science, technology, engineering or medicine subject.
MSc Biomedical Engineering pathways: ► Biomechanics ► Medical Physics ► Neurotechnology	Bioengineering	Engineering	2:1 in an engineering, physical science or mathematical subject.
MRes Chemical Biology: Multidisciplinary Physical Scientists for Next Generation Biological, Biomedical and Pharmaceutical Research and Development	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.
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 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.
MSc Healthcare and Design, delivered by the Institute of Global Health Innovation (IGHI)	Surgery and Cancer	Medicine	2:1 in any subject. Applicants require either a clinical background or healthcare experience.
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.
MSc Medical Ultrasound	NHLI	Medicine	2:1 in medicine, biological sciences, engineering or a physical sciences subject.
MSc Medical Ultrasound (Echocardiography)	NHLI	Medicine	As above.
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.
MRes Structural Molecular Biology	Life Sciences	Natural Sciences	2:1 in a physical sciences-based subject.
PG Cert / PG Dip / MSc Surgical Innovation	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.

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 Bioengineering	Bioengineering	Engineering	2:1 in an engineering, physical science, mathematical, or life/biomedical sciences subject.
MRes Bioimaging Sciences	Chemistry	Natural Sciences	2:1 in a science, technology, engineering or medicine subject.
MRes Biomedical Research streams: ► Molecular Basis of Human Disease ► Respiratory and Cardiovascular Science	Surgery and Cancer	Medicine	2:1 in an appropriate subject.
MRes Cancer Biology stream: ► Cancer Biology	Surgery and Cancer	Medicine	2:1 in an appropriate subject.
MRes Chemical Biology: Multidisciplinary Physical Scientists for Next Generation Biological, Biomedical and Pharmaceutical Research and Development	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 / MSc Genes, Drugs and Stem Cells – Novel Therapies	National Heart and Lung Institute (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.
MSc Human Molecular Genetics	Medicine	Medicine	2:1 in biochemical sciences, genetics or another science-based subject. Mature applicants with relevant academic or professional experience will also be considered.
MSc Immunology	Medicine	Medicine	2:2 in an appropriate science subject, medicine, dentistry or veterinary science.
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.
MSc Molecular Biology and Pathology of Viruses	Medicine	Medicine	2:2 in biological science, medicine or veterinary science.
MSc Molecular Medicine	Medicine	Medicine	2:2 in biological science, medicine or veterinary science.
MSc 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 science 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.
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.

Policy and communication

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

Course	Department	Faculty	Entry requirements
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 Healthcare and Design, delivered by the Institute of Global Health Innovation (IGHI)	Surgery and Cancer	Medicine	2:1 in any subject. Applicants require either a clinical background or healthcare experience.
PG Cert / PG Dip / MSc Health Policy, delivered by the IGHI	Surgery and Cancer	Medicine	2:1 in any subject plus two years' healthcare experience.
MSc International Health Management	Imperial College Business School		www.imperial.ac.uk/business-school/programmes/msc-programmes
PG Cert / PG Dip / MSc Paediatrics and Child Health	Medicine	Medicine	2:1 in biological or biomedical sciences, nursing, pharmacy, physiotherapy, or similar. Applicants with a diploma and substantial healthcare experience may be considered, subject to successful completion of an entrance examination.
PG Cert / PG Dip / MSc Patient Safety, delivered by the IGHI	Surgery and Cancer	Medicine	2:1 in a healthcare-related or policy/management-related subject, or an MBBS. Applicants with professional healthcare experience may also be considered.
MPH Public Health streams: ▶ Global Health ▶ Health Service and Systems	School of Public Health	Medicine	2:1 in a science subject or an MBBS degree. Suitable applicants are likely to be those with a background in medicine, health sciences, biological sciences or environmental sciences. Mature applicants with relevant academic or professional experience will also be considered.
MSc Science Communication	Science Communication Unit		2:1 in a scientific or science-related subject.
MSc Science Media Production	Science Communication Unit		2:1 in a scientific or science-related subject.
PG Dip / MEd Surgical Education	Surgery and Cancer	Medicine	2:1 in science, engineering, computing, healthcare or education. Applicants also require basic computing experience and three years' relevant experience.
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 A–B. Relevant industrial/professional experience may also be considered.
MSc Transport and Business Management	Civil and Environmental Engineering	Engineering	As above.

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

▶ www.imperial.ac.uk/study/pg/courses

Practical and clinical medicine

- ▶ The study and practice of medicine based on direct observation of patients.

Course	Department	Faculty	Entry requirements
PG Cert / Allergy PG Dip / MSc	Medicine	Medicine	2:1 in a healthcare related subject, nursing, dietetics, immunology, physiology or biomedical science.
MRes Biomedical Research streams: ▶ Anaesthetics, Pain Medicine and Intensive Care ▶ Bacterial Pathogenesis and Infection ▶ Biomedical Research ▶ Epidemiology, Evolution and Control of Infectious Diseases ▶ Microbiome in Health and Disease ▶ Molecular Basis of Human Disease	Surgery and Cancer	Medicine	2:1 in an appropriate subject.
MRes Cancer Biology stream: ▶ Cancer Biology ▶ Cancer Informatics	Surgery and Cancer	Medicine	2:1 in an appropriate 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 Clinical Research streams: ▶ Diabetes and Obesity ▶ Human Nutrition ▶ Human Vaccinology ▶ Translational Medicine	Medicine	Medicine	2:1 in medicine or life sciences.
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 Epidemiology	School of Public Health	Medicine	2:1 in mathematics, statistics, medicine (human and veterinary) or biological sciences.
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.
MSc Medical Ultrasound	NHLI	Medicine	2:1 in medicine, biological sciences, engineering or a physical sciences subject.
MSc Medical Ultrasound (Echocardiography)	NHLI	Medicine	As above.
PG Cert / PG Dip / MSc Paediatrics and Child Health	Medicine	Medicine	2:1 in biological or biomedical sciences, nursing, pharmacy, physiotherapy, or similar. Applicants with a diploma and substantial healthcare experience may be considered, subject to successful completion of an entrance examination.
PG Cert / MSc Reproductive and Developmental Biology	Surgery and Cancer	Medicine	2:1 in biological science, medicine or veterinary science.
PG Cert / PG Dip / MSc Surgical Innovation	Surgery and Cancer	Medicine	2:1 in science, engineering, computing, healthcare or education. Applicants also require basic computing experience and three years' relevant experience.
MSc Translational Neuroscience	Medicine	Medicine	First class Honours in biological science.

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 Materials, offered by Imperial College London–UCL EPSRC Centre for Doctoral Training (CDT)*	Materials	Engineering	www.cdt-acm.org
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 Clinical Medicine Research	Various	Medicine	Normally applicants require a Master's degree and a 2:1 in an appropriate subject or an MBBS.
PhD Clinical Sciences Research	Institute of Clinical Sciences	Medicine	2:1 in an appropriate subject, or equivalent. Master's degree is preferable, but not essential: www.lms.mrc.ac.uk/study-here/phd-studentships
PhD Electrical Engineering Research	Electrical and Electronic Engineering	Engineering	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
PhD Life Sciences Research	Life Sciences	Natural Sciences	As above.
PhD Medical Research Council Studentships, offered by Imperial College Medical Research Council Doctoral Training Partnership (DTP)	All departments within the Faculty	Medicine	www.imperial.ac.uk/mrc-dtp-studentships/eligibility-criteria
PhD Science Communication Research	Science Communication Unit		2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
PhD Theory and Simulation of Materials, offered by EPSRC Centre for Doctoral Training (CDT)*	Physics	Natural Sciences	www.imperial.ac.uk/theory-and-simulation-of-materials

Integrated PhD (1 + 3)

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 international 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 Biological Sciences, offered by Imperial College London–Royal Holloway BBSRC Doctoral Training Partnership (DTP)	Life Sciences	Natural Sciences	www.imperial.ac.uk/bbsrc-doctoral-training-partnership
MRes + PhD Chemical Biology, offered by Institute of Chemical Biology Centre for Doctoral Training (CDT)	Chemistry	Natural Sciences	www.icb-cdt.co.uk
MRes or MSc + PhD Medical Research Council Studentships, offered by Imperial College Medical Research Council Doctoral Training Partnership (DTP)	All departments within the Faculty	Medicine	www.imperial.ac.uk/mrc-dtp-studentships
MRes + PhD Molecular and Cellular Basis of Infection Wellcome Trust PhD Training Programme	Medicine	Medicine	www.imperial.ac.uk/wellcome-infection-phd
MRes + PhD Neurotechnology, offered by EPSRC Centre for Doctoral Training (CDT) in Neurotechnology for Life and Health*	Institute of Biomedical Engineering	Engineering	www.imperial.ac.uk/neurotechnology/cdt
MRes + PhD Photonics, available through several EPSRC-funded Centres for Doctoral Training (CDTs) in which Photonics research group members are involved*	Physics	Natural Sciences	www.imperial.ac.uk/photonics/postgraduate-training/phd-opportunities-in-photonics
MRes + PhD Plastic Electronic Materials, offered by EPSRC Centre for Doctoral Training (CDT)*	Chemistry and Physics	Natural Sciences	www.imperial.ac.uk/plastic-electronics-cdt

Professional Doctorate

For medically qualified 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	2:1 in an appropriate subject. Applicants must also normally hold or be studying towards a Master's degree.
MD(Res) Clinical Medicine Research	Various	Medicine	Normally applicants require a Master's degree and a 2:1 in an appropriate subject or an MBBS.

* All EPSRC-funded Centres for Doctoral Training are currently subject to an EPSRC proposal review. The complete list of Centres for Doctoral Training is set to be confirmed in winter 2018 and any changes, including those to course titles and host departments, will be published on our website: www.imperial.ac.uk/study/pg/courses/doctoral-courses/integrated-phd

Imperial College London



**Discovery and
the natural world**



**Engineering
novel solutions**



**Health and
wellbeing**



**Leading the
data revolution**

 imperialcollegelondon

 @imperialcollege

 imperialcollege

 imperialcollege

Imperial College London
South Kensington Campus
London SW7 2AZ

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