

Multidisciplinary Optimisation Masters/MSc

Masters / MSc postgraduate degree course in Multidisciplinary Optimisation:

The MSc in Multidisciplinary Optimisation is a one-year full-time degree for students who would like to receive practical, technical and theoretical training in advanced aspects of optimisation. Optimisation problems arise in all aspects of mathematics, science and engineering.

However, the technical and theoretical skills required are often outside the scope of a traditional single discipline based degree. This programme is targeted at strong mathematics, science or engineering graduates who wish to gain valuable skills and techniques in this area, which will be a considerable asset to their further study or employability.

[Study here and find out why the University of Birmingham was awarded The Times and The Sunday Times University of the Year 2013-14](http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)
[\(<http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx>\)](http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)

Course fact file

Type of Course: Taught

Study Options: Full time

Duration: 1 year full-time

Start date: September/October

Related courses

[Advanced Computer Science Masters/MSc](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/advanced-computer-science.aspx) ([/postgraduate/courses/taught/computer-science/advanced-computer-science.aspx](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/advanced-computer-science.aspx))

[Computer Science Masters/MSc](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/computer-science.aspx) ([/postgraduate/courses/taught/computer-science/computer-science.aspx](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/computer-science.aspx))

[Human Computer Interaction Masters/MSc](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/human-computer-interaction.aspx) ([/postgraduate/courses/taught/computer-science/human-computer-interaction.aspx](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/human-computer-interaction.aspx))

[Robotics Masters/MSc](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/robotics.aspx) ([/postgraduate/courses/taught/computer-science/robotics.aspx](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/robotics.aspx))

[Computer Security Masters/MSc](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/computer-security.aspx) ([/postgraduate/courses/taught/computer-science/computer-security.aspx](http://www.birmingham.ac.uk/postgraduate/courses/taught/computer-science/computer-security.aspx))

Contact

If you would like further information about the course, please contact:

Professor Xin Yao

Tel: +44 (0)121 415 8742

Fax: +44 (0)121 414 4281

Email: msc-admissions@cs.bham.ac.uk (<mailto:msc-admissions@cs.bham.ac.uk>)

[School of Computer Science](http://www.birmingham.ac.uk/schools/computer-science/index.aspx) ([/schools/computer-science/index.aspx](http://www.birmingham.ac.uk/schools/computer-science/index.aspx))

Details

The MSc in Multidisciplinary Optimisation is a one-year full-time degree for students who would like to receive practical, technical and theoretical training in advanced aspects of optimisation. Optimisation problems arise in all aspects of mathematics, science and engineering. However, the technical and theoretical skills required are often outside the scope of a traditional single discipline based degree. This programme is targeted at strong mathematics, science or engineering graduates who wish to gain valuable skills and techniques in this area, which will be a considerable asset to their further study or employability.

Breakdown of course You will study essential Research Skills, and you will carry out two mini-projects and a larger research project. In addition, you will choose 50 credits of optional modules from the following:

- **[Introduction to Evolutionary Computation](http://www.cs.bham.ac.uk/internal/modules/2010/22753.html)** (<http://www.cs.bham.ac.uk/internal/modules/2010/22753.html>)
- **[Introduction to Neural Computation](http://www.cs.bham.ac.uk/internal/modules/2010/12412.html)** (<http://www.cs.bham.ac.uk/internal/modules/2010/12412.html>)
- **[Intelligent Data Analysis \(Extended\)](http://www.cs.bham.ac.uk/resources/modules/2009/20233.html)** (<http://www.cs.bham.ac.uk/resources/modules/2009/20233.html>)
- **[Nature-Inspired Design](http://www.cs.bham.ac.uk/internal/modules/2010/12418.html)** (<http://www.cs.bham.ac.uk/internal/modules/2010/12418.html>)
- Integer Programming*
- Nonlinear Programming 1*
- Multi-Criteria Decision Making *
- Heuristic Optimisation*
- Combinatorial Optimisation*
- Conic Programming*

*these modules are taught by the School of Mathematics

This distinct programme covers the field of optimisation from a highly multi-disciplinary point of view. It includes mathematical programming methods, heuristic optimisation as well as meta-heuristic optimisation. It treats optimisation holistically and provides students with a unique set of skills that neither computer science nor mathematics could provide easily.

Related links

- [School of Computer Science \(http://www.cs.bham.ac.uk\)](http://www.cs.bham.ac.uk)
- More about this programme www.cs.bham.ac.uk/admissions/postgraduate-taught/degree_info/msc-mo/index.php (http://www.cs.bham.ac.uk/admissions/postgraduate-taught/degree_info/msc-mo/index.php)

Fees and funding

Tuition fees

Tuition fees for 2015/2016 are as follows:

- £6,840 for **home/EU students**
- £17,960 for **international students**

Part-time programmes

Most part-time programmes run for two years and their fees are one half of the standard full-time programme fees. A small number of part-time programmes run for three years and in these cases the annual fees are one third of the total full-time cost. Contact us for further information.

UK student visa regulations mean that students classed as overseas for fees purposes may normally only register on a full-time basis.

Further funding information

Standard fees ([/postgraduate/pgt-fees/fees.aspx](#)) apply

Learn more about **fees and funding** ([/postgraduate/pgt-fees/fees.aspx](#))

Scholarships and studentships

For information about scholarships for students on our postgraduate taught programmes visit www.cs.bham.ac.uk/admissions/postgraduate-taught/scholarships.php (<http://www.cs.bham.ac.uk/admissions/postgraduate-taught/scholarships.php>). International students can often gain funding through overseas research scholarships, Commonwealth scholarships or their home government.

For further information contact the School directly or email financialsupport@bham.ac.uk (<mailto:financialsupport@bham.ac.uk>)

Entry requirements

At least an Upper Second Class (2.1) degree or an international equivalent in a science or engineering subject with sufficiently high marks in fundamental mathematics and computing

Learn more about **entry requirements** (<http://www.birmingham.ac.uk/students/pg/requirements>)

International students

We accept a range of qualifications from different countries – learn more about **international entry requirements** (<http://www.birmingham.ac.uk/students/pg/requirements/international>).

Standard English language requirements ([/postgraduate/requirements-pgt/international/index.aspx](#)) apply.

How to apply

Applications are not currently being accepted pending review of the programme.

Learning and teaching

You will choose from a range of optional modules which will be taught using lectures and tutorials.

In addition, you will work on a mini project in each semester as well as a research project over the summer.

Employability

Optimisation is ubiquitous in the real world. This MSc will arm you with skills in innovative thinking, complex problem solving as well as specific optimisation algorithms.

The graduates can take on many different career roles: in management where they will be better informed in decision-making, in consulting where they will be able to employ the best problem solving strategies for a complex problem, in technical and engineering jobs where they will solve real-world problems first hand, and in research where they provide innovative solutions to their business partners.

University Careers Network

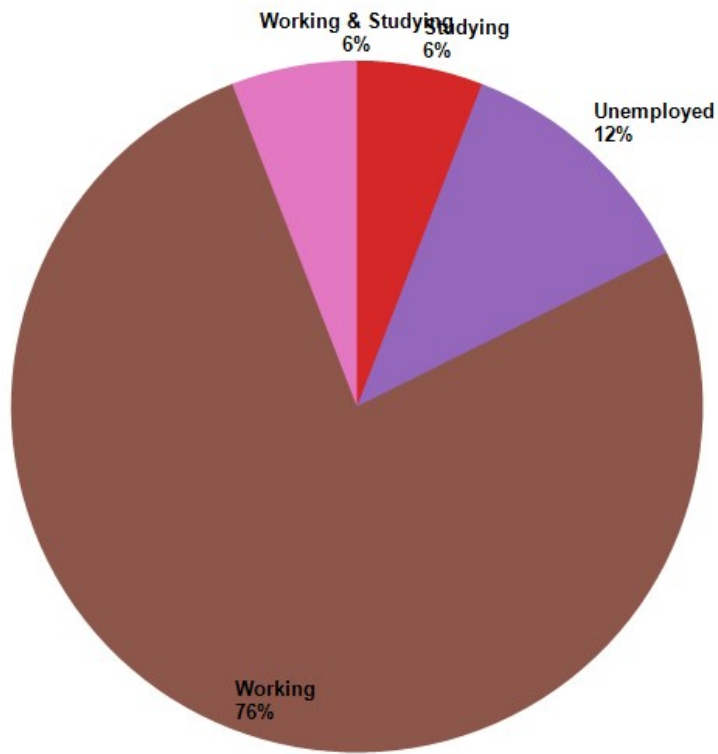
Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

Our unique careers guidance service is tailored to your academic subject area, offering a specialised team (in each of the five academic colleges) who can give you expert advice. Our team source exclusive work experience opportunities to help you stand out amongst the competition, with mentoring, global internships and placements available to you. Once you have a career in your sights, one-to-one support with CVs and job applications will help give you the edge.

If you make the most of the **wide range of services** (<https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx>) you will be able to develop your career from the moment you arrive.

Destinations of Leavers from Higher Education (DLHE) 2011/12 (postgraduate taught graduates)

The DLHE survey is conducted 6 months after graduation.



Examples of employers

- Credit Suisse
- Innovise
- Atos
- BAe Systems
- Bank of America
- J.P. Morgan
- Logica
- Tessella
- Morgan Stanley
- QinetiQ

Examples of occupations

- Software Engineer
- Software Developer
- Technical Analyst
- Applications Developer
- Cyber Security Consultant
- Design Engineer
- Junior Programmer
- Software Consultant
- Technical Consultant
- Technology Analyst

Further study - examples of courses

- MSc Computer Security

- MSc International Business
- MEng Aeronautics & Astronautics
- MSc Computer Science
- MSc Artificial Intelligence
- MSc Operational Research
- MSc Imbedded Systems
- PhD - Physical Sciences in the Biomedical Imaging
- PhD - Computer Science

Visit the **Careers section of the University website** (<https://intranet.birmingham.ac.uk/as/employability/careers/college/eps/index.aspx>) for further information.