Biomedical Sciences
BSc Honours

A world-class university in a world-famous city

UCAS code B940
3 Years

www.ncl.ac.uk/ug/B940
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Biomedical Sciences
BSc Honours
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3 Years

This degree explores the functioning of the human body in health and disease. It equips you with specialist knowledge about how major diseases can be treated.

Modern medicine depends on the advances made by scientists working in the biomedical sciences.

You’ll explore the links between: anatomy; biochemistry; genetics; immunology; microbiology; neuroscience; pharmacology, and physiology.

This multidisciplinary approach gives you in-depth knowledge about the science of the human body.

It also helps you understand disease processes. You’ll learn how we can develop new treatments for cancer, Alzheimer’s, AIDS and more. This is essential for the development of new and improved treatments, as well as for preventative approaches.

Study with us and you’ll:
• develop scientific and experimental skills through practical work in our biomedical labs
• boost your CV through work experience here at the University
• learn from experts and graduate with the latest knowledge of human health and disease

Highlights of this degree

Quality and ranking
We are a National Centre of Excellence in biomedical research.

We rank:
• top 20 in the UK for Biomedical Sciences – The Times/Sunday Times Good University Guide 2019 (Subjects Allied to Medicine category)
• top 125 – Clinical, Pre-clinical and Health category – Times Higher Education World University Rankings by Subject 2018

Professional accreditation
This degree has been accredited by the Royal Society of Biology (RSB).

Accreditation by the RSB recognises academic excellence in the biosciences that educates the research and development leaders and innovators of the future.

*All professional accreditations are reviewed regularly by their professional body.

Study at the cutting edge
Scientists working in biomedicine are at the forefront of medical developments that can save lives. By studying one of our degrees, you’re taking your first step towards a rewarding career in science.

We’ll make sure you get the best start by providing expert teaching at the cutting edge of the subject.

We’re a National Centre of Excellence in biomedical research and our world-leading expert staff teach at all levels on our degree programmes. This means you graduate with the latest knowledge in human health and disease.

Boost your employability with a work placement
Apply to spend 9 to 12 months on an optional work placement between Stages 2 and 3. You can apply to spend your placement year with any organisation and will receive University support to do so.

You’ll gain first-hand experience of working in the sector, putting your learning into practice and developing your professional expertise.

It will extend your degree by a year and is subject to availability, however it isn’t available if you’re spending a year studying abroad.

Find out more about Work Placements.

Get work experience whilst you study
We provide lots of work experience opportunities here at the University, to help you boost your employability alongside your studies.

Options include:
• vacation studentship opportunities in one of the University’s research laboratories
• paid part-time work in one of our research institutes through our Laboratory Assistant scheme
• employability ambassador scheme
• student mentoring scheme

The University has an award-winning Careers Service. They can help you find suitable work, provide interview training and offer advice on your CV and application forms.

Develop advanced research skills
In your final year you complete a research project on a topic that interests you.

This gives you practical experience of planning and conducting research, boosting your CV with desirable research skills.

Most students do their project work in one of our research institutes.

Here, you’re working alongside leading scientists. You’ll develop advanced scientific skills and get an insight into a career as a researcher.

Your project may be:
• a laboratory project in one of our internationally rated research institutes
• a laboratory project in a research laboratory abroad
• a clinical study under the supervision of one of the medically qualified staff working within our Faculty
• a project with a local school or college
• an IT-based project

**Study abroad**
If you want to experience life in another country, you can work or study abroad as part of your degree.

A year abroad **boosts your CV**, your confidence and your communication skills.

It shows employers you embrace new experiences and gives you intercultural awareness.

We have partners across **Europe and in North America, Australia and Singapore**. You can study abroad at a partner university or take a summer placement in a research laboratory overseas.

**Transfer to Medicine or Dentistry**
There is flexibility to **transfer between our degree programmes** at the end of the first year if you find your interests change.

You can also apply to **transfer to our Medicine or Dentistry degree**. This opportunity is open to UK, EU and international students. It is competitive, with a limited number of places available. Students are selected on the basis of academic performance in the first year, a UKCAT score, a personal statement and, if shortlisted, an interview.

**Facilities**
You’ll be based in the **School of Biomedical Sciences**. The School is in the Faculty of Medical Sciences, which is also home to Dentistry, Medicine, Psychology and Pharmacy.

Situated next to **Newcastle’s RVI hospital**, we’re one of the largest integrated teaching/hospital complexes in the country.

Our facilities include:
• a **dedicated medical library** with a wide range of specialist books and journals
• large teaching laboratories
• hi-tech computer clusters and study spaces

Newcastle’s **vibrant city centre** is just a few minutes’ walk away.

Visit the School’s website to watch videos by undergraduates who have recorded their experiences working in our labs and find out what former students have done since graduating.

**Support and settling in**
We provide plenty of support to help you successfully move from school to university study. We’ll help you settle in quickly and are here if you have any issues.

We support you through:
• a **personal tutor** – a member of academic staff who can help with academic and personal issues
• a **peer mentor** – a fellow student who can help you settle in and answer any questions you have

• specialised **course advisers** and tutors - who operate an open door policy for all students
• our **student-run society** – to help you make friends with your course mates through social events

Graduates meeting the Vice-Chancellor.
Course Details

Modules for 2018 entry

Please note
The module and/or programme information below is for 2018 entry. Our teaching is informed by research and modules change periodically to reflect developments in the discipline, the requirements of external bodies and partners, student feedback, or insufficient numbers of students interested (in an optional module). To find out more read our terms and conditions.

Module/programme information for 2019 entry will be published here as soon as it is available (end of May 2019).

Our degrees are divided into Stages. Each Stage lasts for an academic year and you need to complete modules totalling 120 credits by the end of each Stage. Further information, including the credit value of the module, is available in each of the module descriptions below.

What you will study

Flexible degree structure
All of our Biomedical and Biomolecular Sciences degrees are divided into two phases:

- Phase 1 is shared by all of our degrees and provides a broad introduction to biomolecular sciences
- Phase 2 provides specialist topics relating to your individual degree choice

This flexible structure gives you the chance to try a broad range of topics, helping you to see where your interests in biomedical sciences lie before you specialise.

You can change between our degrees at the end of Year 1 if you wish.

Phase 1
All of your first year, and the first half of your second year.

We introduce you to biomolecular sciences through a series of modules covering:

- cell biology
- biochemistry
- microbiology and immunology
- genetics
- pharmacology
- physiology
- practical skills in biomedical and biomolecular science

Phase 2
The second half of your second year, and the remainder of your degree.

This phase is specific to the individual degree that you choose. On our Biomedical Sciences BSc degree, you study topics such as:

- cell biology and disease
- practical and presentation skills in biomedical sciences
- human anatomy
- integrated biomedical sciences

You also complete a research project in an area linked to your degree that interests you.

In third year, you’ll select one of the following modules, designed to boost your professional skills in an employment area that we know many of our graduates progress to:

- Genetics and Human Disease
- Immunology of Health and Disease
- Epidemiology
- Cancer Biology and Therapy
- Diseases of the Human Nervous System
- Chronic Disease
- Clinical Aging and Health
- Medical Biotechnology
- Microbiota and Pathogens: Mucosal Microbiota, Protozoa and Fungi
- Business for the Bioscientist
- Healthcare Organisation and Practice
- Science Communication
- Research in Biomedical Sciences
- Bioethics
- Bioinformatics

Modules
Some modules are compulsory to make sure you get all the essential knowledge you need. Optional modules let you tailor the degree towards your personal interests.

Stage 1

Compulsory modules

- BGM1002 Biochemistry
- BGM1004 Genetics
- CMB1003 Microbiology and Immunology
- CMB1004 Cell Biology
- CMB1005 Practical Skills in Biomedical and Biomolecular Sciences 1
- CMB1006 Practical Skills in Biomedical and Biomolecular Sciences 2
- PED1003 Pharmacology
- PSC1002 Physiology

Stage 2

Compulsory modules

- CMB2000 Essential Biomedical Research Skills
- CMB2001 Control of Eukaryotic Gene Expression
- CMB2004 Cell and Molecular Biology of the Immune System
- BMS2002 Cell Biology and Disease
- BMS2013 Practical and Presentational Skills in Biomedical Sciences
- CMB2007 Human Anatomy

Optional modules
You choose one module from each of the following lists.

List A
BMS2012 Clinical Immunology and Viral Pathogens OR
BMS2014 The Biology of Ageing

List B

BMS2011 Neuroscience: from Cell to Cognition OR
BMS2015 Health and Disease at Mucosal Surfaces

Work Placement (optional)
You can apply to spend 9 to 12 months on an optional work placement between Stages 2 and 3. You can apply to spend your placement year with any organisation and will receive University support to do so. It will extend your degree by a year and is subject to availability. It isn’t available if you’re spending a year studying abroad. Find out more about Work Placements.

Stage 3

Compulsory modules
- BMS3008 Integrated Biomedical Sciences
You will take one of the following modules. The relevant module will be determined by the School.
  - CMB3000 Research Project
  - CMB3001 Research Design Project
  - CMB3002 Research Project for Exchange Students

Optional modules
You can take modules from the following selection:
- BMS3010 Genetics of Common Disease
- BMS3021 Immunology of Health and Disease
- BMS3023 Epidemiology
- BMS3012 Cancer Biology and Therapy
- BMS3013 Disease of the Human Nervous System
- BMS3020 Chronic Disease
- BMS3017 Clinical Ageing and Health
- BGM3039 Medical Biotechnology
- MIC3046 Microbiota and pathogens: Mucosal Microbiota, Protozoa and Fungi

You can also select one of the following modules, designed to boost your professional skills in an employment area that we know many of our graduates progress to:
- BMS3003 Business Enterprise for the Bioscientist
- BMS3007 Research in Biomedical Sciences
- BMS3015 Healthcare Organisation and Practice
- BMS3016 Science Communication
- BMS3022 Bioethics
- BMS3025 Bioinformatics

Guide to Biomedical and Biomolecular Sciences at Newcastle
Not sure which degree is right for you? Find out a bit more about our different subject areas below.

Remember, all our degrees share the same Phase 1, so you can transfer to a different degree if you find your interests change (up until the end of Phase 1).

Biomedical Sciences
Modern medicine depends on the advances made by scientists working in the biomedical sciences. You’ll study anatomy, biochemistry, genetics, immunology, microbiology, neuroscience, pharmacology and physiology. This multidisciplinary approach helps us understand disease processes and find new treatments for diseases such as cancer, Alzheimer’s disease and TB.
- Biomedical Sciences BSc Honours (B940)
- Biomedical Sciences (Integrated Master’s) MSci Honours (B900)

Biochemistry
Biochemistry is the study of life at the molecular level. You’ll study how genes and proteins regulate cells, tissues and whole organisms like you. Have you wondered what causes diseases such as cancer and diabetes? Would you like to help develop new drug treatments? Biochemistry provides the key to understanding how diseases arise and can be treated.
- Biochemistry BSc Honours (C700)
- Biochemistry (Integrated Master’s) MSci Honours (C701)

Biomedical Genetics
DNA is the genetic ‘blueprint’ that ensures the continuity of life from parent to offspring. Genetics is the study of how DNA is transmitted between generations. And how it’s decoded to determine our individual characteristics. We have a strong research and teaching reputation in this field. The Institute of Genetic Medicine plays a major role in our degree programme.
- Biomedical Genetics BSc Honours (B901)
- Biomedical Genetics (Integrated Master’s) MSci Honours (B903)

Medical Science
Do you enjoy biology? Are you interested in the biomedical or biomolecular aspects of the subject? Want to study these further at university? If you are not quite sure which area will suit you best, the Medical Science (Deferred Choice) programme could be ideal for you. It allows you to study the common first year before deciding which subject area to specialise in at later stages.
- Medical Science (Deferred Choice) BSc Honours (B902)

Pharmacology
Pharmacology involves the study of the action of drugs on the body and vice-versa. An understanding of drugs and their actions allows us to use them safely and effectively. It is thanks to pharmacologists that you can take an aspirin when you get a headache or have an anaesthetic when the dentist gives you a filling.
- Pharmacology BSc Honours (B210)
Physiological Sciences
Physiology is the study of how the body functions. Physiologists study the processes essential to human life such as breathing, digesting food and sensing the world around us. You’ll focus on human physiology, which underpins our understanding of how the body works in health and disease.

- Physiological Sciences BSc Honours (B100)

Teaching and assessment
You’ll learn through a combination of lectures, practical laboratory classes and small group seminars.

You also have the chance to attend optional research talks, aimed especially at first-year students, as part of our biomedicine+ programme.

Assessment is by examinations and coursework assignments. These include:
- practical assessments
- seminar tasks
- written work

Teaching and assessment methods may vary from module to module.

Entry Requirements

All candidates are considered on an individual basis.

If your qualifications are not listed here, please see our additional entry requirements web pages to find out which other qualifications are considered.

The entrance requirements below apply to 2019 entry.

A Levels
AAA-AAB including Biology or Chemistry, plus at least one from: Mathematics or Further Mathematics; Physics; Psychology; Biology; or Chemistry. General Studies, Use of Mathematics, World Development, Communication and Culture and Critical Thinking not accepted. GCSE Chemistry and Biology (minimum grade A or 7) and GCSE Mathematics and English Language (minimum grade B or 6) required if not offered at A or AS level. GCSE Combined Science (minimum grade A or 7) may be accepted.

Scottish Qualifications
AAAAA-AAABB at Higher Grade including Biology and Chemistry. Mathematics and English required at National 5, minimum grade B (or grade 2 Standard Grade or Intermediate 2 equivalent) if not offered at Higher Grade. Where a candidate bypasses the assessment for National 5 qualifications, a minimum of grade C in the Higher in Mathematics and English is required. Combinations of Highers and Advanced Highers accepted.
Scottish qualifications can be taken in more than one sitting.

International Baccalaureate
34-35 points with Biology, or Chemistry and another science at Higher Level grade 5 or above. We regard Mathematics, Physics, Psychology, Biology and Chemistry as acceptable science subjects. Standard Level Chemistry and Biology required at grade 5 and Standard Level Mathematics or Mathematical Studies and English required at grade 4 if not offered at Higher Level.

Irish Leaving Certificate
H1H1H1H1H2 at Higher Level, including Biology and Chemistry.

Access Qualifications
45 level 3 credits at Distinction including 15 credits in biology and 15 credits in chemistry.

Pearson BTEC Level 3 National Extended Diploma/OCR Cambridge Technical Level 3 Extended Diploma
Not acceptable for entry to this subject.

Cambridge Pre-U
D3, D3, D3 - D3, D3, M2 in Principal Subjects including Biology or Chemistry plus at least one from: Mathematics or Further Mathematics; Physics; Psychology; Biology; or Chemistry. GCSE Chemistry and Biology (minimum grade A or 7) and GCSE Mathematics and English Language (minimum grade B or 6) required if not offered at a higher level.

Extended Project Qualification
We welcome applications from students offering an Extended Project and value the skills of research and independent learning that it is designed to develop. If you offer an Extended Project, it will be taken into account as part of your application profile, but we will not usually include it in offer conditions for this degree programme.

PARTNERS - A Levels
BBB including Biology or Chemistry, plus at least one from: Mathematics or Further Mathematics; Physics; Psychology; Biology. General Studies, Use of Mathematics, World Development, Communication and Culture and Critical Thinking not accepted. GCSE Chemistry and Biology (minimum grade A or 7) and GCSE Mathematics and English Language (minimum grade B or 6) required if not offered at A or AS level. GCSE Combined Science (minimum grade A or 7) may be accepted.

The PARTNERS Programme is Newcastle University’s supported entry route for students from schools and colleges in England, Scotland and Northern Ireland. Find out more about the PARTNERS Programme.

PARTNERS - BTEC Pearson BTEC Level 3 National Extended Diploma/OCR Cambridge Technical Level 3 Extended Diploma
Not acceptable for entry to this subject.

The PARTNERS Programme is Newcastle University’s supported entry route for students from schools and
colleges in England, Scotland and Northern Ireland. Find out more about the PARTNERS Programme.

**PARTNERS - Scottish Qualifications**

BBBBBB at Higher Grade including Biology and Chemistry. Mathematics and English required at National 5, minimum grade B (or grade 2 Standard Grade or Intermediate 2 equivalent) if not offered at Higher Grade. Where a candidate bypasses the assessment for National 5 qualifications, a minimum of grade C in the Higher in Mathematics and English is required. Combinations of Highers and Advanced Highers accepted. Scottish qualifications can be taken in more than one sitting.

The PARTNERS Programme is Newcastle University’s supported entry route for students from schools and colleges in England, Scotland and Northern Ireland. Find out more about the PARTNERS Programme.

**English Language Requirements**

Applicants whose first language is not English require a **minimum score of IELTS 6.5 or equivalent** including **6.0 in each of the four elements of the test**.

If you need help to meet our English Language requirements, we can provide support with **extra tuition**.

Read more about **UK visas** and immigration requirements.

**Other International Qualifications**

ABB at A level is typically the minimum required for entry to an undergraduate course. You can check the equivalent grades for qualifications offered in your country.

We will also consider your application if you have lower or non-standard qualifications.

**International Foundation Programmes**

If you are an international student and you **do not meet the academic and English language requirements specified above**, you should consider a pre-sessional course at INTO Newcastle University, which will help to prepare you for study on this degree course.

INTO Newcastle University is based on the University campus and offers a range of courses including the **International Foundation in Biological and Biomedical Sciences**.

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**Careers**

**Careers in Biomedical Sciences**

97% of graduates from the school of Biomedical Science were employed or in further study within 6 months of graduating, with an average salary of **£20,124**

There is a great demand for graduates in the biomedical and biomolecular sciences within the health services and industry, particularly leading or working as part of research teams, and many of our students choose this career path.

**Engaging with Industry**

Throughout your studies there will be many opportunities to engage with industry including:

- Site visits
- Guest lectures
- Employability Fairs
- Industrial placements
- Internships
- Advice from Industry

**We develop our students' employability with:**

- Access to our award winning careers service
- Year-long industrial placements
- Summer placements
- Internship opportunities
- Opportunities for part time work with JobsOC
- SOLAR - a student led outreach group teaching school children science
- Employability ambassador roles
- Opportunities to volunteer via Go Volunteer
- Opportunities to participate in clinical work shadowing
- Mock interviews
- CV interviews
- Careers clinics
- Assistance with applying to medicine/dentistry

**When you graduate**

Sectors employing bioscientists include:

- Pharmaceuticals
- Biotechnology
- Universities
- Management
- NHS
- Finance
- Patent Law
- Chemical
- Cosmetics and toiletries
- Food and Drink
- Scientific writing
- IT
- Research and development
- Teaching

In addition, with a biosciences-related degree you could undertake scientific, medical, veterinary and agricultural research in universities and research institutes. Hospital and
public health laboratories also employ a large number of bioscientists.

A large proportion of our graduates choose to take a further degree either a Medical, Masters, PhD or teaching qualification, before embarking on permanent employment.

What our Alumni say

"The opportunities afforded by doing the MSci gave me a fantastic taste of research and helped me realise it was the career path for me." - Dr Alex Egan - Research Associate

"My degree allowed me to sample several different scientific areas, providing me with a broad understanding, before I specialised in an area I thoroughly enjoyed. This has lead me down the path of molecular biology and ultimately to my current research and development position working in the pharmaceutical industry." - Dr Lauren Drage - Development Scientist at GSK

"The School of Biomedical Sciences gave me the foundation needed for my PhD. From lab practicals, to the summer placement, to the final year project, I was provided with many opportunities to test first hand if research was the correct path for me." - Siobhan Lister - PhD student

Companies that our graduates work for include:

- GlaxoSmithKline Plc
- NHS
- Bupa
- Fujifilm Diosynth
- KPMG
- Universities worldwide
- Small and Large pharma/biotech

Find out more about the career options for Biomedical and Biomolecular Sciences from Prospects: The UK’s Official Careers Website.

*Destination of Leavers of Higher Education (DLHE) data 2015/16

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**Careers and employability at Newcastle**

Newcastle University consistently has one of the best records for graduate employment in the UK.

96% of our 2017 UK-domiciled UG/PG graduates progressed to employment or further study within six months of graduating.

85.5% of our graduates are in graduate level employment or further study within six months of graduating.

We provide an extensive range of opportunities to all students through an initiative called ncl+. This enables you to develop personal, employability and enterprise skills and to give you the edge in the employment market after you graduate.

Our award-winning Careers Service is one of the largest and best in the country, and we have strong links with employers.

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**Fees & Funding**

### Tuition Fees (UK students)

**2019 entry:**

£9,250

For programmes where you can spend a year on a work placement or studying abroad, you will receive a **significant fee reduction** for that year.

Some of our degrees involve **additional costs** which are not covered by your tuition fees.

**Please note:**

The maximum fee that we are permitted to charge for UK students is set by the UK government.

As a general principle, you should expect the tuition fee to increase in each subsequent academic year of your course, subject to government regulations on fee increases and in line with inflation, as measured by RPIX*.

See more information on all aspects of **student finance** relating to Newcastle University.

*RPIX is a measure of inflation in the UK, equivalent to all the items in the Retail Price Index excluding mortgage interest payments.

### Tuition Fees (EU students)

**2019 entry:**

£9,250

You will pay the same tuition fees as UK students for the duration of your course.

For programmes where you can spend a year on a work placement or studying abroad, you will receive a **significant fee reduction** for that year.

Some of our degrees involve **additional costs** which are not covered by your tuition fees.

**Please note:**

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**What our graduates go on to do: employment and further study choices**

See what our recent graduates went on to do and view graduate destinations statistics. These statistics are based on what graduates were doing on a specific date, approximately six months after graduation. Take a look at the most recent data available for our graduates.

The destination data is available in varying levels, beginning with the University and moving through Faculty and School down to individual course reports. This final level may give you some useful ideas about possible options after your course or a course you are considering.
Tuition Fees (EU students)

As a general principle, you should expect the tuition fee to increase in each subsequent academic year of your course, subject to government regulations on fee increases and in line with inflation, as measured by RPIX*. See more information on all aspects of student finance relating to Newcastle University.

*RPIX is a measure of inflation in the UK, equivalent to all the items in the Retail Price Index excluding mortgage interest payments.

Tuition Fees (International students)

2019 entry*:
£22,110

*Please note:
You will be charged tuition fees for each year of your degree programme (unless you are on a shorter exchange programme).
The tuition fee amount you will pay may increase slightly year on year as a result of inflation, as measured by RPIX**.

If you spend a year on placement or studying abroad as part of your degree you may pay a reduced fee for that year.

See more information on all aspects of student finance relating to Newcastle University.

**RPIX is a measure of inflation in the UK, equivalent to all the items in the Retail Price Index excluding mortgage interest payments.

Scholarships and Financial Support (UK students)

You may be eligible for one of a range of Newcastle University Scholarships in addition to government financial support.

Newcastle University Scholarships
Government financial support

Scholarships and Financial Support (EU students)

You may be eligible for one of a range of Newcastle University Scholarships in addition to government financial support.

Newcastle University Scholarships
Government financial support

Scholarships and Financial Support (International students)

We offer a range of scholarships to eligible international students:
Vice-Chancellor’s International Scholarships

Scholarships and Financial Support (International students)

Vice-Chancellor’s Excellence Scholarships
Vice-Chancellor’s Global Scholarships

We also offer International Family Discounts which are available for all international students with a close family member who has graduated from or is now studying at Newcastle University.

Some of our subject scholarships and sports scholarships are also available for international students.

Apply

Applying to Newcastle University through UCAS

To apply for undergraduate study at Newcastle you must use the online application system managed by the Universities and Colleges Admissions Service (UCAS).

UCAS codes for Newcastle University

- institution name - NEWC
- institution code - N21

UCAS buzzword

Ask your teacher or adviser from your school or college for the UCAS buzzword. You need the buzzword when you register on the Apply system. This makes it clear which school or college you are applying from.

All UK schools and colleges and a small number of EU and international establishments are registered with UCAS.

If you are applying independently, or are applying from a school or college which is not registered to manage applications, you will still use the Apply system. You will not need a buzzword.

Making your application

On the UCAS website you can also find out more about:

- application deadlines and other important dates
- offers and tracking your application

Application decisions and enquiries

Find out more about our admissions process and who to contact if you need help with your application.
Find out more...

Go online for information about our full range of degrees
www.ncl.ac.uk/undergraduate

To watch videos about student life in Newcastle, visit
www.ncl.ac.uk/lovenewcastle

Visit www.ncl.ac.uk/tour to take virtual tours of the campus and the city

Book for an Open Day to come and see us in person
www.ncl.ac.uk/openday

Contact us online at
www.ncl.ac.uk/enquiries
or phone +44 (0)191 208 3333