

# Mike Carter

## Microbiology Services

## Health Protection Agency Colindale



Clinical Careers

*“Biomedical Science and  
Clinical Science Careers”*

Birmingham Life  
Sciences Careers  
Conference

14<sup>th</sup> November 2012

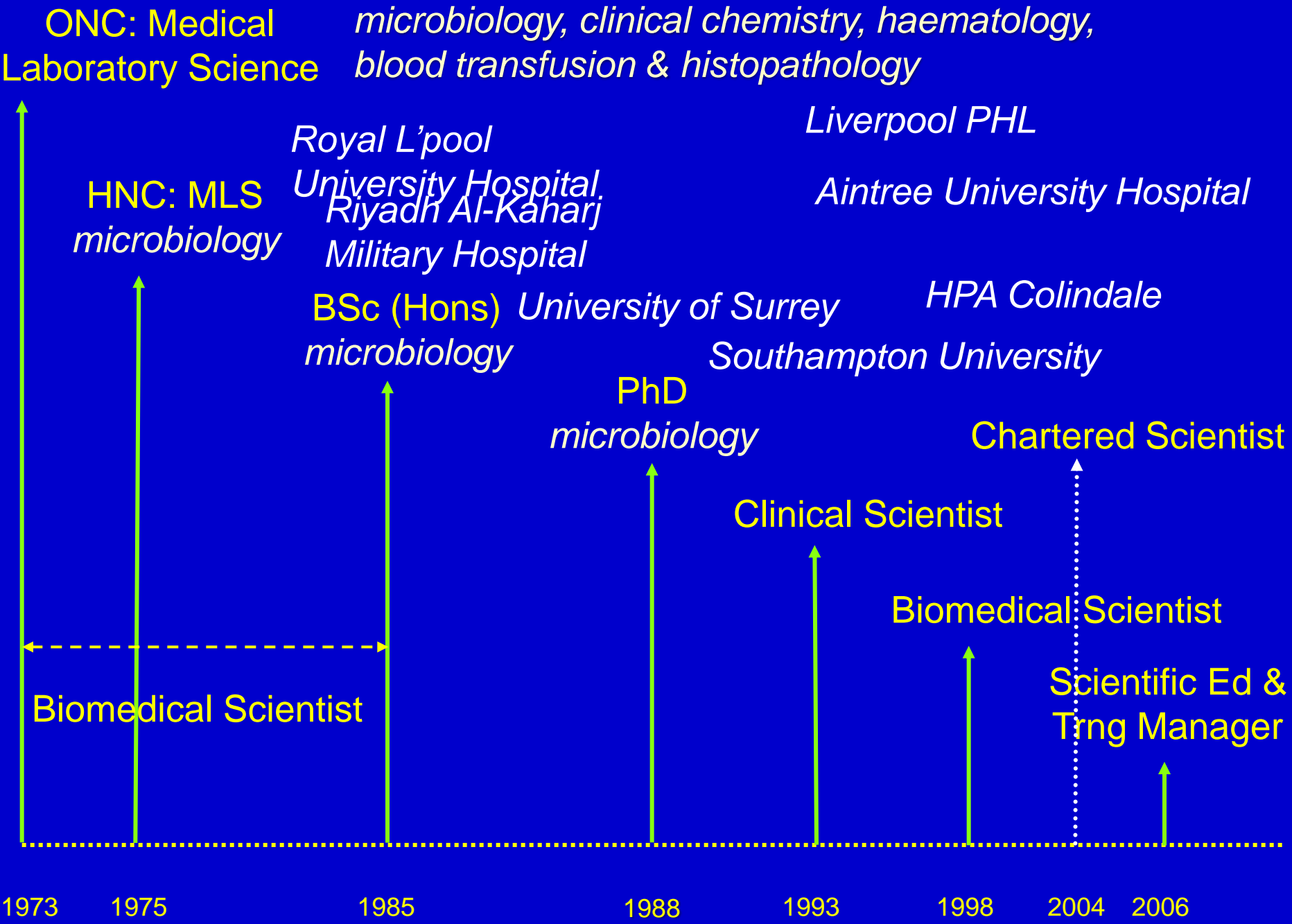
# A career in Biomedical Science



Science  
in the service of life

# This presentation

- Mike's background
- What is biomedical / clinical science?
- Entry & qualifications
- What you can do in biomedical or clinical science
- Disciplines within biomedical / clinical science







**1 year old baby admitted  
to AE at 02:00 in the morning...**

**High fever**

**Vomiting**

**Stiff body with jerky movements**

**Irritable and crying**

**Refusal to feed**



Want to save the  
baby's life?

Gory picture alert!



**25 year old admitted  
to AE at 3:30 in the morning...**

**Motorbike RTA**

**Severe trauma to right leg including...**

**open fracture to neck of femur**

**severed artery**

**loss of 4 pints of blood**

**unconscious**





Want to save the  
biker's life?

Let me tell you how...

you can save these lives by

working in

biomedical / clinical sciences

Role	Healthcare Scientist
Play an important part in modern medical care	✓
Must be accurate and efficient as lives depend on their skills	✓
Perform tests on samples of tissue, body fluids and other specimens	✓
All samples taken by a doctor or nurse - analysed by.....	✓



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Play an important part in modern medical care	✓
Must be accurate and efficient as lives depend on their skills	✓
Perform tests on samples of tissue, body fluids and other specimens	✓
All samples taken by a doctor or nurse - analysed by.... <b><i>a healthcare scientist</i></b>	✓



# Without Biomedical Scientists

Doctors

*would not*

be able to  
diagnose diseases properly  
or  
treat patients effectively



“Without biomedical scientists,  
hospital departments such as  
accident & emergency  
and  
operating theatres could not function.”

# Requirements for entry to Biomedical Scientist training

University

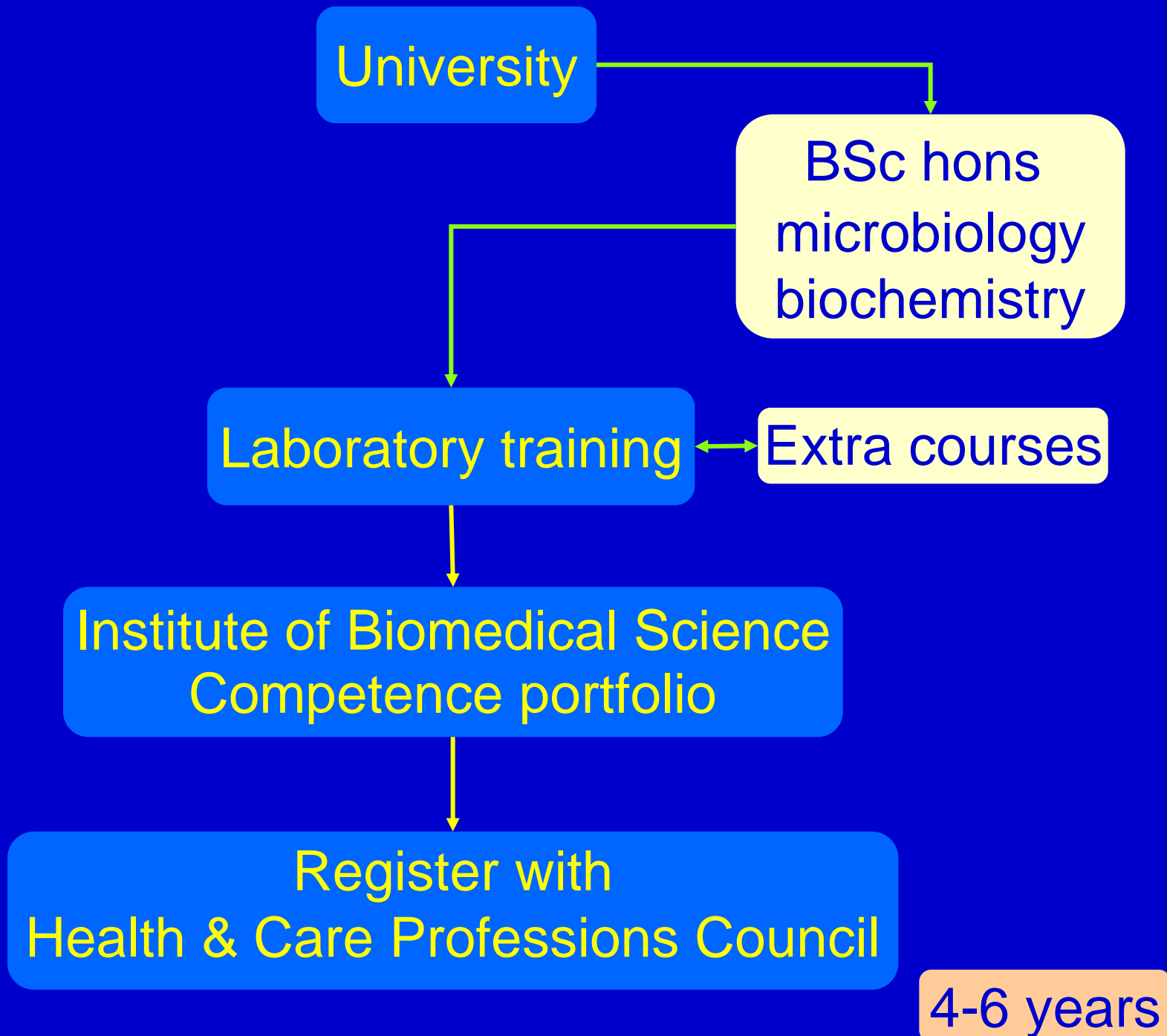
BSc Hons  
Biomedical Science

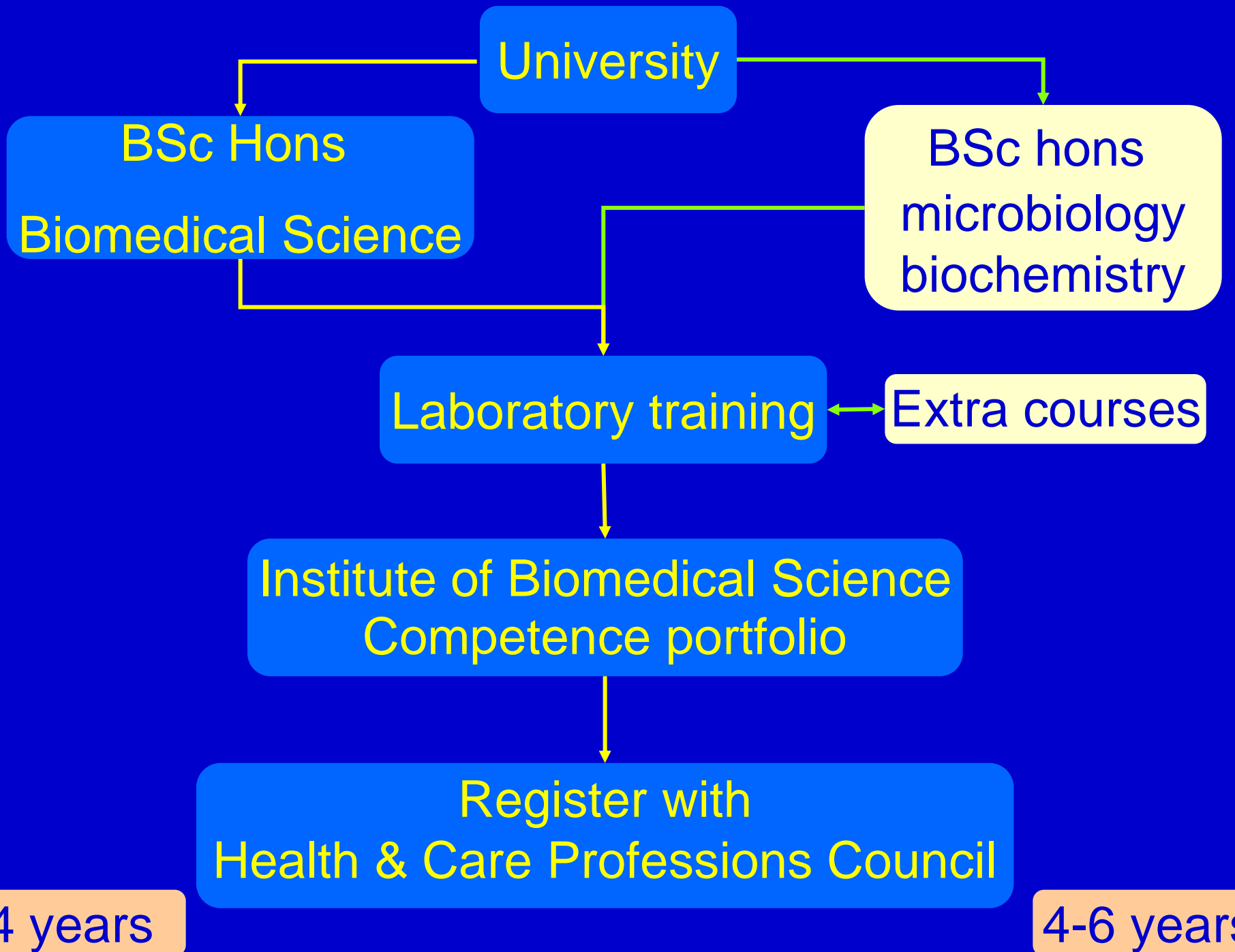
Laboratory training

Institute of Biomedical Science  
Competence portfolio

Register with  
Health & Care Professions Council

4 years





University

BSc Hons

Biomedical Science

BSc hons

microbiology  
biochemistry

Laboratory training

Extra courses

Institute of Biomedical Science  
Competence portfolio

Register with  
Health & Care Professions Council

4 years

4-6 years



# Requirements for entry to Clinical Scientist training

University

biomedical science  
microbiology  
biochemistry  
genetics  
immunology

Lab training

Portfolio

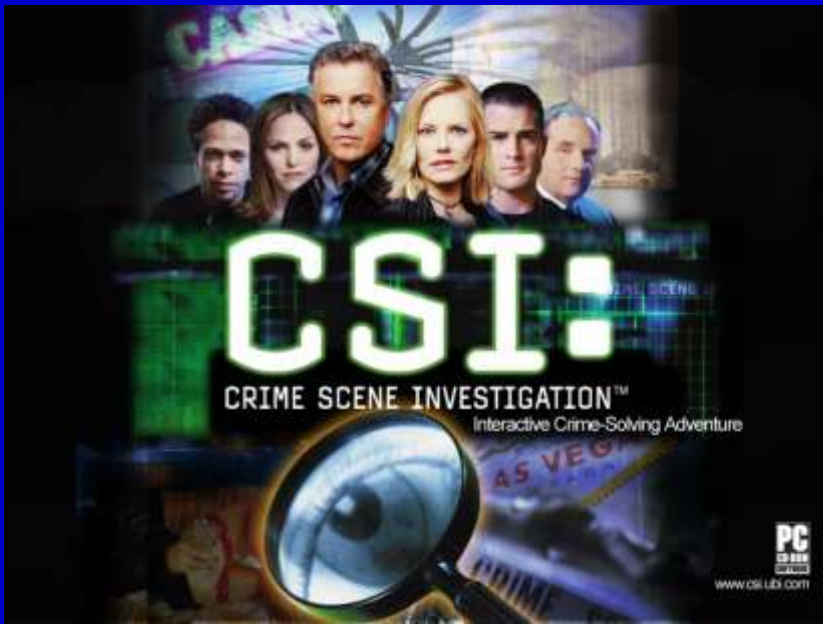
Register with

Health and Care Professions Council

5-6 years



Training	Biomedical Scientist	Clinical Scientist
Training in an IBMS-approved laboratory	✓	✗
Registration with the Health and Care Professions Council	✓	✓
Continuing Professional Development (CPD)	✓	✓
Higher degree(s)	✓	✓



[http://csi.ubi.com/media/wallpaper/CSI\\_wallpaper1\\_1024.jpg](http://csi.ubi.com/media/wallpaper/CSI_wallpaper1_1024.jpg)



[www.zona39.com/wp-content/uploads/2010/01/csi-ny-2.jpg](http://www.zona39.com/wp-content/uploads/2010/01/csi-ny-2.jpg)



[www.hellagoodrecords.com/credits/csi%20miami.jpg](http://www.hellagoodrecords.com/credits/csi%20miami.jpg)



<http://img156.imageshack.us/i/dsc01185zg4.jpg/>



## Welcome to NHS Careers

The information service for careers in the NHS in England.

The National Health Service offers a huge range of exciting and challenging opportunities for people who are passionate about making a difference. With more than [350 different careers](#) on offer, there is a job for you no matter what your interests, skills or qualifications.

Further information is available if you're interested in [working or studying elsewhere in the UK](#).

If you are a healthcare professional from outside of the UK, please see our information for [international healthcare professionals](#).

### NHS Jobs

Search current vacancies, find jobs that match your skills, and apply online.

### Careers A-Z

There are hundreds of different roles in the NHS. Explore the A to Z list and find the career for you.

### FAQs

Find answers to frequently asked questions about working in the NHS.

### Download Leaflets

Details of dozens of different careers.

### Course Finder

Find details of clinical study courses.

### Resources for education

Lesson plans and support documents.

### Health visiting recruitment

Find out about health visiting careers.

### Health Learning and Skills

### Working in the NHS

Pay and benefits, flexible working and how to apply for a job.



### Real life stories

To be a midwife, common sense, a good sense of humour, being a team player and communication skills are all important. Read Joy's story.



### Get your students thinking about careers in the NHS

Calling secondary school teachers. Our schools competition for students in years eight and nine is now open. There are some great prizes up for grabs!



### World Diabetes Day

Wednesday 14 November is World Diabetes Day, which aims to make people aware of the seriousness of the disease and its impact. This month, NHS Careers is highlighting those NHS staff who help treat patients with both type 1 and type 2 diabetes.





## Explore by career

[Allied health professions](#)
[Ambulance Service Team](#)
[Dental Team](#)
[Doctors](#)
[Health Informatics](#)
[Healthcare Science](#)
[Careers in healthcare science](#)
[Modernising Scientific Careers](#)
[Entry requirements](#)
[Skills required](#)
[Training](#)
[Pay for healthcare science staff](#)
[Real life stories](#)
[FAQs](#)
[Healthcare Science links](#)
[Download factsheets](#)
[Registration \(clinical scientists and biomedical scientists\)](#)

[NHS Careers](#) > [Explore by career](#) > [Healthcare Science](#)

# Healthcare science

If you are passionate about technology or science, and about helping others, a career in [healthcare science](#) in the NHS offers a wide range of opportunities.

The healthcare science team play a vital role in the prevention, diagnosis and treatment of a huge number of medical conditions, as well as in rehabilitation. Along with doctors, nurses and other professions, healthcare science staff are essential members of today's healthcare team. Whether it's helping patients with hearing problems, analysing tissue samples, or researching how results from the human genome project can be translated into new treatments, these jobs are done by people whose expertise helps to save lives and improve care for millions of NHS users.

A variety of skills are needed to work in the healthcare science team including great communication and interpersonal skills. [Modernising Scientific Careers](#) also means there are now a number of different [training routes](#) you can take to become part of the healthcare science team.

Rapid advances in technology mean this is now one of the most exciting, challenging and rewarding areas of the NHS.





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Find out about health visiting careers



[NHS Careers](#) > [Misc](#) > [Welcome to the NHS Healthcare Scientist Training Programme](#)

## Welcome to the NHS Healthcare Scientist Training Programme

**Applications for the 2012 intake to the NHS Healthcare Scientist Training Programme have now closed. However, the full [list of posts](#) is still available for shortlisted applicants.**

The NHS Healthcare Scientist Training Programme is a comprehensive work based training programme, introduced as part of the UK Modernising Scientific Careers programme. The programme equips healthcare scientists with the right up-to-date knowledge and skills to care for patients in the 21st century.

As part of the modernised national training scheme, NHS trusts are funded to offer salaried training posts in life sciences, physical sciences and biomedical engineering or physiological sciences throughout England.

The healthcare science workforce is one of the most exciting and dynamic in the NHS. Healthcare scientists play a vital role in the prevention, diagnosis and treatment of disease and the rehabilitation of patients. Their innovation and expertise help save lives and improve care and is crucial in helping the NHS to respond to the challenges of public and patient needs in the 21st century.

If you are committed to improving the health of others by applying your science, a career as a healthcare scientist in the NHS could not be a more rewarding choice. It also offers plenty of scope for personal development, great career prospects and a wide range of opportunities to use specialist scientific skills and interests for the benefit of patients.

Successful candidates will be employed as a 'Trainee Healthcare Scientist' by an NHS trust. They will join a three year, fixed term, training programme of work-based and academic learning, undertaking a university accredited master's degree.

These training posts offer excellent broad based clinical scientific training across a range of rotations in different themed pathways before specialisation in the latter part of the training.

Successful trainees will be in a position to apply for NHS posts as healthcare scientists.

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### Health Learning and Skills advice line

Free of charge information, advice and guidance on career development.

### International healthcare

## About Modernising Scientific Careers

## Explore by career

<a href="#">Allied health professions</a>
<a href="#">Ambulance Service Team</a>
<a href="#">Dental Team</a>
<a href="#">Doctors</a>
<a href="#">Health Informatics</a>
<a href="#">Healthcare Science</a>
<a href="#">Careers in healthcare science</a>
<b><a href="#">Modernising Scientific Careers</a></b>
<a href="#">Entry requirements</a>
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<a href="#">FAQs</a>
<a href="#">Healthcare Science links</a>
<a href="#">Download factsheets</a>
<a href="#">Registration (clinical scientists and biomedical scientists)</a>
<a href="#">Management</a>
<a href="#">Midwifery</a>
<a href="#">Not sure?</a>
<a href="#">Nursing</a>
<a href="#">Operating department practice</a>
<a href="#">Pharmacy careers</a>
<a href="#">Psychological therapies</a>
<a href="#">Wider healthcare team</a>

NHS Careers > Explore by career > Healthcare Science > Modernising Scientific Careers

## Modernising Scientific Careers

Careers and training in healthcare science have been revitalised by the Modernising Scientific Careers (MSC) programme. Training is more consistent and patient focused, allowing trainees at all levels to gain practical and engaging workplace experience as soon as they start, coupled with academic learning.

### Training and education programmes

MSC introduces training programmes at four main career levels for the healthcare science workforce.

- associate/assistant - NVQs and foundation degrees (or equivalent) underpinned by an awards and qualifications framework
- Practitioner Training Programme (PTP) - undergraduate level
- Scientist Training Programme (STP) - postgraduate level, pre-registration training
- higher specialist scientific training (HSST) - doctoral level.

These are supported by workplace-based assessment tools, assessment of equivalent learning and development of academic careers.

### NHS Practitioner Training Programme

Undergraduate training for the NHS Practitioner Training Programme (PTP) will lead to an approved and accredited BSc honours degree in one of five themes of healthcare science:

- cardiovascular, respiratory and sleep sciences (cardiac physiology, respiratory and sleep physiology)
- neurosensory sciences (audiology, neurophysiology, ophthalmic and vision science)
- life sciences (blood sciences, infection sciences, tissue and cellular diagnostics, genetic )
- medical physics technology (radiotherapy physics, radiation physics, nuclear medicine)
- clinical engineering (medical engineering, radiation engineering, renal technology, rehabilitation engineering).

Learning will be delivered through approved and accredited BSc honours degrees that integrate academic learning and workplace-based training. These degrees will include 50 weeks of workplace-based training over three years with a broad scientific training in the first two years, followed by specialisation in year 2 or 3.

### NHS Scientist Training Programme

Postgraduate training for the NHS Scientist Training Programme (STP) will lead to a specifically commissioned and accredited master's degree and certification of



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### International healthcare professionals

Information for healthcare professionals and/or those who have qualifications from outside of the UK.





- Home
- Employers list
- Register with NHS Jobs
- Why register?

## Search results

There were 27 matches for your search criteria: to include **biomedical AND scientist** in the title. Click on a job title for more details and to apply for that job.

[▶ Show results without descriptions](#)

Sort list:  *by date posted*  *by salary*  *by relevance*  *by employer* [Sort](#)

### Chief Biomedical Scientist - Blood Transfusion

Clinical Support Services

East & North Hertfordshire NHS Trust

Posted: 13/11/2012

Location: Lister and Queen Elizabeth II Hospitals Applications are invited from experienced and enthusiastic individuals for the above post. You must be HPC registered and have broad experience at either a BMS 2 or BMS 3 level working in a Blood Transfusion Laboratory within an acute hospital setting. You should have a good working knowledge of blood group serology and be...

Band 8A £38,851-£46,621pa	Stevenage	Permanent	Closing date 27/11/2012
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### Biomedical Scientist

Blood Sciences

Luton & Dunstable Hospital NHS Trust

Posted: 13/11/2012

Department of Blood Sciences Haematology and Blood Transfusion sections BIOMEDICAL SCIENTIST 12 month fixed term contract - Full-Time 37.5 hours We are looking for an enthusiastic HPC State Registered Biomedical Scientist to join our busy, friendly Laboratory, which has full CPA accreditation and HPC training status. The successful applicant will be expected to participate in the 24/7 shift pattern operating...

£21,176 to £27,625 pa	Luton	Fixed Term Temporary	Closing date 26/11/2012
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### Registered users

Email Address

Password

[▶ Forgotten your password?](#)

[Log in](#)

## Refine your search

Text

*in title*  *in advert*  *job reference*

Location

Employer

Salary

Staff group

Job type

[▶ Advanced search](#)

[Search](#)

[Jobs by email and RSS](#)

### Advice for jobseekers





# Professional Requirements

- professional skills and competence
- flexibility and adaptability
- multi-professional team worker
- reflective practitioner (learn from successes and mistakes)
- continuing professional development

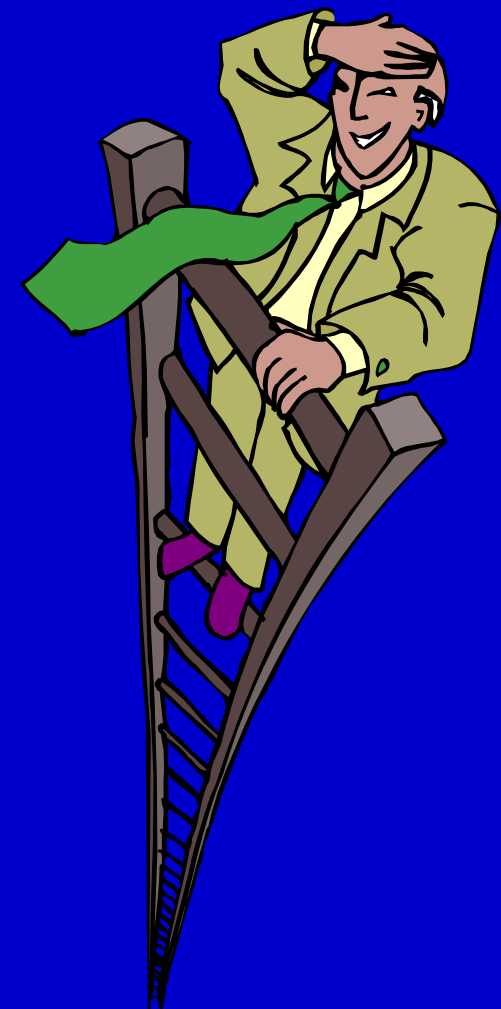






# Healthcare Scientist career progression

- **Band 5** Healthcare scientist practitioner  
Biomedical scientist
- **Band 6** Healthcare scientist specialist  
Biomedical scientist team leader  
Trainee Clinical scientist
- **Band 7** Biomedical scientist advanced  
Clinical scientist
- **Band 8** Healthcare scientist professional manager  
Principal clinical scientist
- **Consultant**



# Healthcare Scientist salary

£21,176 - £97,478



# Where can you find Healthcare Scientists?

- Armed Forces
- Forensics
- Health Protection Agency
- Higher Education Institutions
- Medical Research Council
- National Blood Service
- NHS pathology laboratories
- Pharmaceutical Industry
- Veterinary

# Careers in Healthcare Science

- Environmental
- Epidemiology
- IT
- Management
- Patient care / Diagnostics
- Research
- Safety
- Sales
- Surveillance
- Teaching & training
- Quality



# Various bio-medical sciences

# Clinical Chemistry

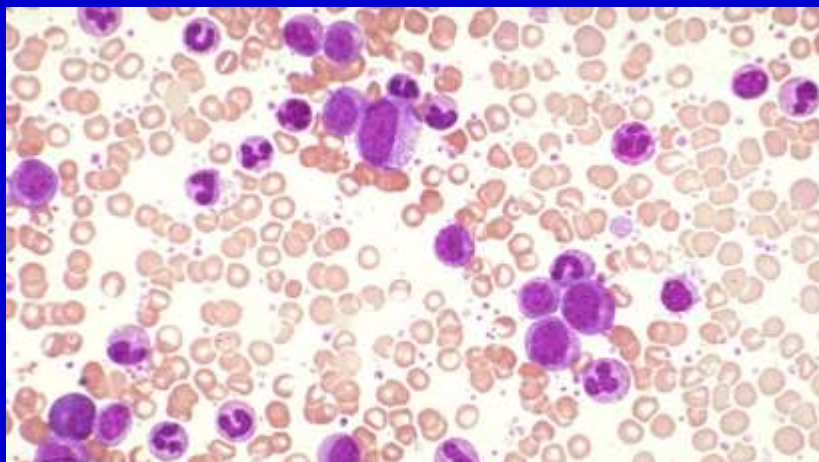


- analyse blood & other biological materials
- diagnosis of disease eg diabetes
- toxicological studies
- test kidney and liver functions
- help monitor therapies
- detect drug abuse

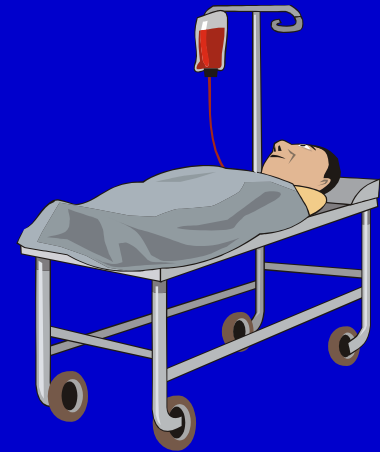
# Haematology



- formation, composition, function & diseases of the blood
- diagnose leukaemia, malaria, anaemia, genetic disease & clotting disorders etc



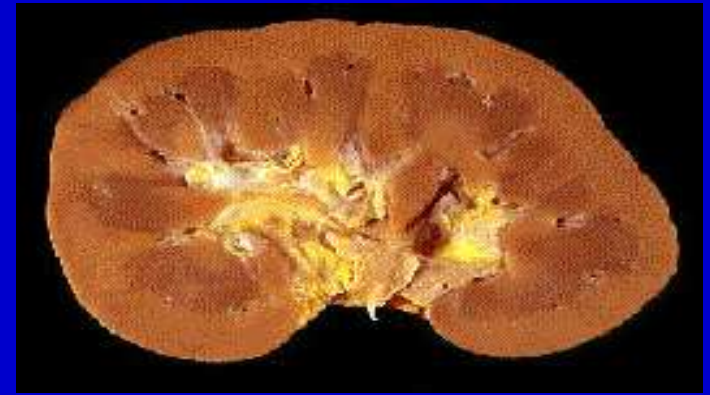
# Transfusion Science



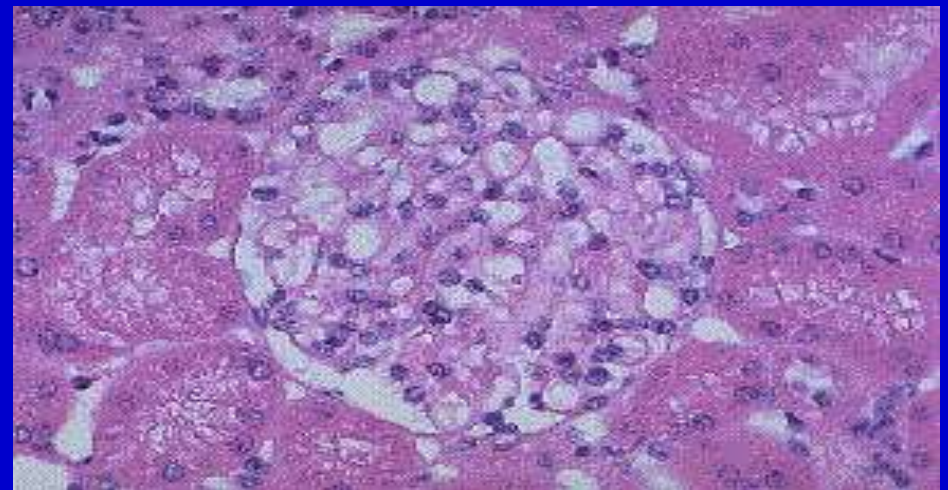
- identify blood groups for blood donation
- ensure correct blood group is matched to the patient receiving the donation
- structure of red cell antigens, preparation and storage of blood components, transfusion reactions, transplantation



# Histology



- study tissue samples microscopically to establish the cause of illness
- diagnose diseases such as cancer by looking for abnormal features in tissue cells



# Immunology



- deal with the body's immune system
- its role in infectious diseases, allergies, tumour growth, tissue grafts and organ transplantation
- work is important in the monitoring and treatment of AIDS



# Virology



- study viruses and the disease caused by them eg German measles, HIV, mumps, chickenpox, smallpox, rabies, Lassa fever and Marburg virus
- also monitor the effects of vaccines



# Medical Microbiology

- study micro-organisms such as bacteria, fungi and parasites
- isolate & identify these pathogenic micro-organisms
- establish the antibiotic treatment required to treat the disease
- epidemiology of infectious diseases
- environmental microbiology





Word of warning.....



Before



After



# Summary

An overview of the Healthcare Scientist  
in biomedical / clinical science

Routes you can take to gain entry, salary  
and opportunities available

# Acknowledgments

Anne Carter (NCRI)

Peter Borriello (CfI)

Haematology image bank ([haematology.org](http://haematology.org))

Institute of Biomedical Science

NHS Careers ([www.nhscareers.nhs.uk/index.shtml](http://www.nhscareers.nhs.uk/index.shtml))

Sarah May (IBMS)

World wide web

Success is a science, if you have the  
conditions you get the result

Oscar Wilde