BHF 4-Year Multidisciplinary PhD Programme

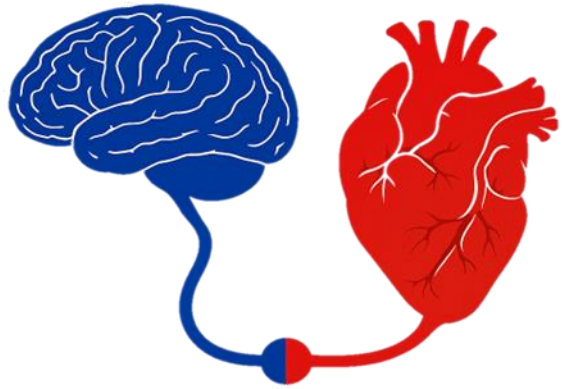
General information about the webinar:

- Presentation followed by Q&A
  - Can submit questions in Q&A function, but please wait until the end of the presentation
    ** Programme only open to home UK students
  - Do not post information in questions that you don't want to be read out
- We will be sending you a PDF of the key information after the webinar

The information provided in this webinar is offered as guidance and is not part of the formal admissions process. You should ensure you review the admissions process for the programme prior to your application:

https://www.bmh.manchester.ac.uk/study/research/funding-fees/funded-programmes/bhf-chain/

CHAIN Consortium



Connecting Hearts And mINds

The University of Manchester

British Heart Foundation

University of Bristol

University of Liverpool

Introductions

Dr Gina Galli

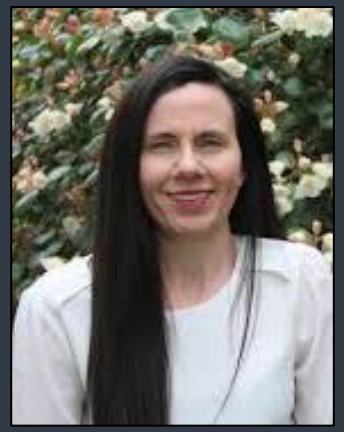
University of Manchester

Programme Director

Prof Alastair Poole

University of Bristol

Co-Director

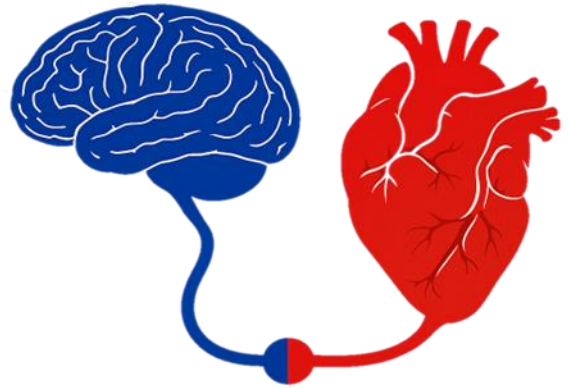


Prof Deirdre Lane

University of Liverpool

Co-Director

CHAIN Consortium



Connecting Hearts And mINds

MANCHESTER 1824
The University of Manchester

British Heart Foundation

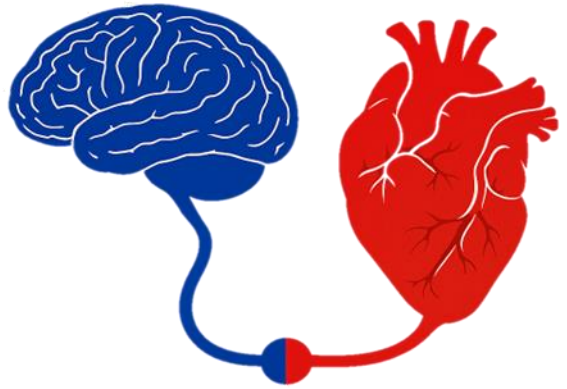
University of BRISTOL

UNIVERSITY OF LIVERPOOL

Webinar structure

- Introduction to the programme (Dr Gina Galli)
  - BHF Multidisciplinary PhD programme
  - Chain Consortium
  - Theme
- Programme structure (Prof. Deirdre Lane)
  - Year 1: Training
  - Years 2-4: PhD project
  - Supervisors and example projects
- Application process (Prof Alastair Poole)
  - Eligibility
  - Application portal
  - What we're looking for
- **Last 30 mins: Questions and answers**

CHAIN Consortium



Connecting Hearts And mINds

MANCHESTER 1824
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BHF 4-Year Multidisciplinary PhD Programme

2026: BHF revamped their flagship PhD programme

Aim: Equip young scientists with diverse skill sets that allow them to address increasingly complex challenges in cardiovascular science (3-point strategy)

1. **Collaboration:** Forge partnerships across universities and industry partners (consortiums) to enhance student training opportunities

2. **Unifying theme:** Focus research on an unmet cardiovascular challenge

3. **Multidisciplinary approach:** Foster cross-disciplinary research to deepen our understanding, diagnosis and treatment of cardiovascular disease.

BHF 4-Year Multidisciplinary PhD Programme

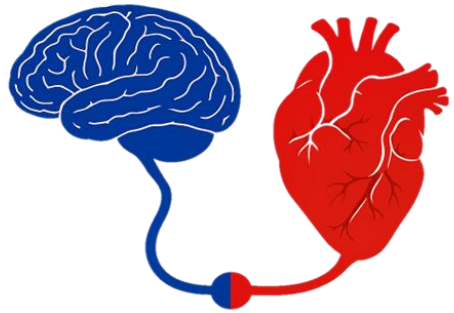
CHAIN Consortium
Connecting Hearts And mINds

1. **Collaboration:** Between The BHF and the Universities of Manchester, Bristol and Liverpool

2. **Unifying theme:** To understand, predict, and disrupt complex interactions between heart and brain diseases

3. **Multidisciplinary approach:** Cross-disciplinary research that integrates diverse fields such as bioscience, data science, engineering, epidemiology, materials, behaviour, nanotechnology and imaging

CHAIN
Consortium

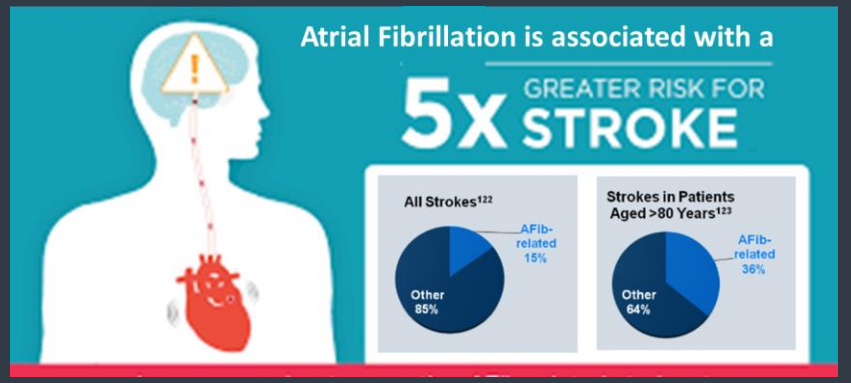


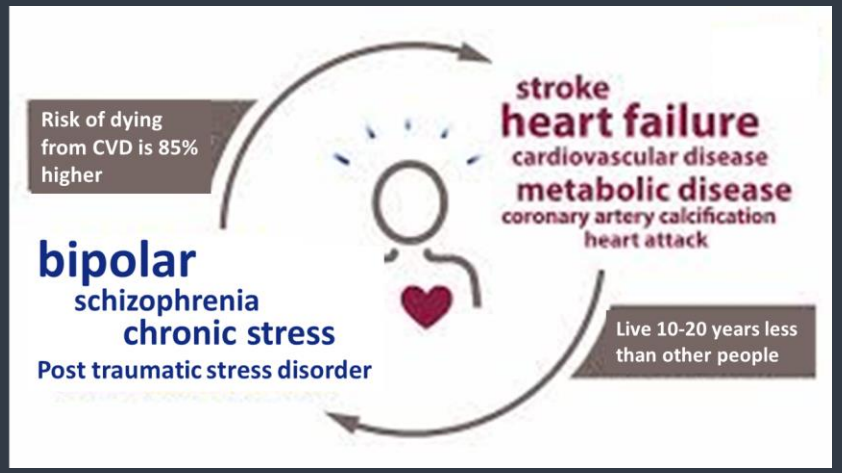
Connecting Hearts
And mINds

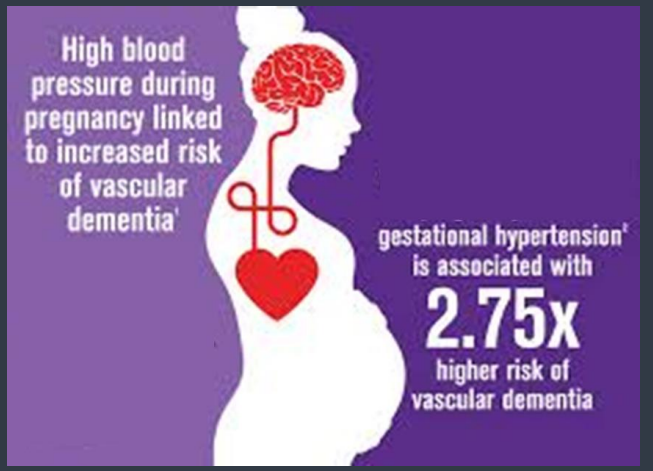
Why Heart and Brain Diseases?

Diseases of the heart and brain frequently occur together, creating serious and often compounding risks for patients

- People with atrial fibrillation (AF) 5 times more likely to have a stroke
- Women who are hypertensive during pregnancy (e.g. preeclampsia) almost 3 times more likely to get vascular dementia
- People with severe psychiatric disorders are 85% more likely to die from cardiovascular disease



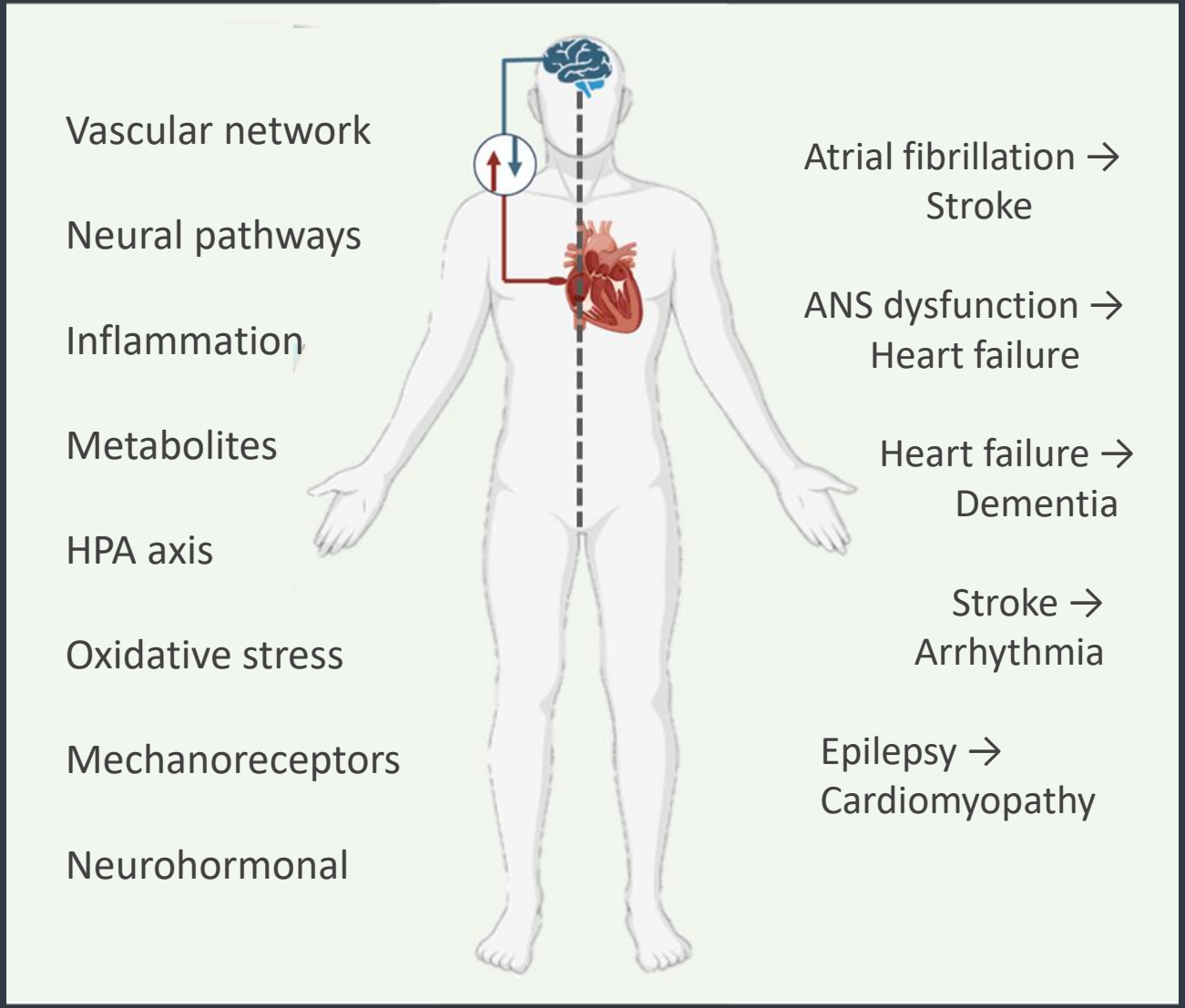




The Heart-Brain axis

These clinical links arise from the intimate connection between the heart and brain: Heart-Brain Axis

- Complex network of factors that physically connect heart and brain health
- Disruption of these interconnected systems can drive disease processes affecting both organs
- Vicious cycle of disease and comorbidity – urgent crisis as the number of people aged 65 or older expected to double by 2050
- Need to take an integrative approach and study these organ systems together



CHAIN Objectives

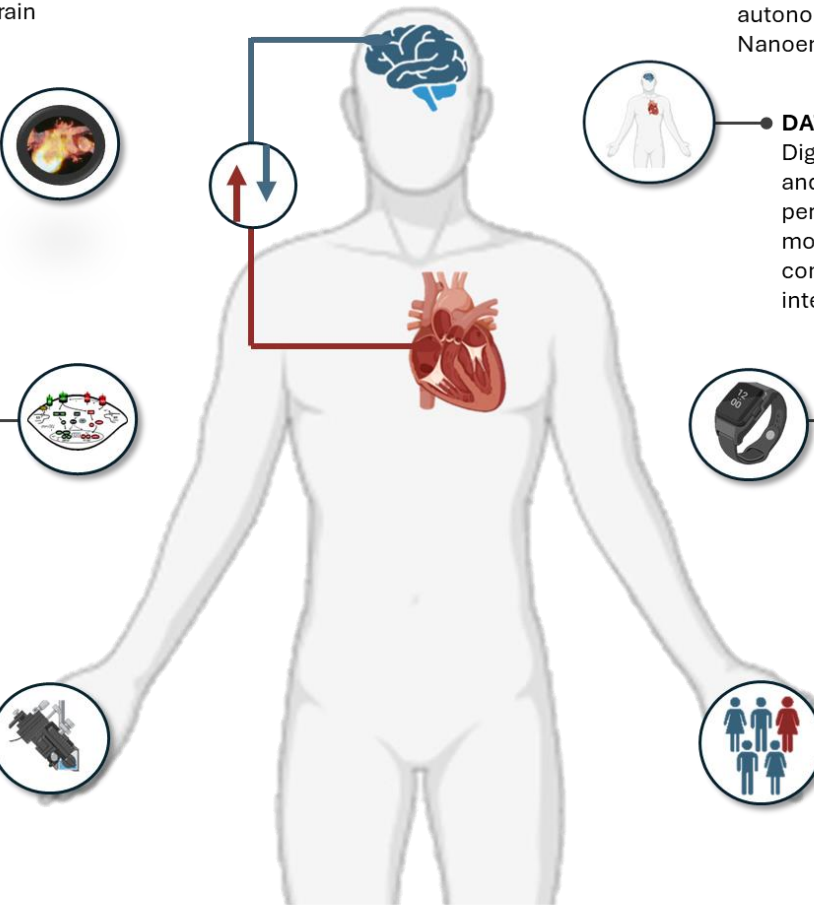
Overall aim: To understand, predict, and disrupt complex interactions between heart and brain diseases

Some illustrative examples:

1. Identify the pathophysiological mechanisms that connect cardiovascular and neurological diseases (e.g. inflammation, metabolic dysregulation, microvascular disease, environmental and genetic factors)
2. Develop integrated diagnostic pathways, biomarkers, and tools to detect early and subclinical heart–brain dysfunction.
3. Develop digital risk stratification tools to predict disease risk and evaluate the impact of interventions
4. Design multipurpose therapeutic strategies that target shared biological pathways

Multidisciplinary Approach – Across Institutions

Provide training in disciplines that interest you – enabling you to build a multidisciplinary PhD project



MATERIALS
Peptide-based hydrogels/scaffolds, organs-on-chip, microfluidics and bioengineered models that reveal, repair, and regulate heart-brain interactions

UoM Royce Materials
UoB BioDesign Institute
UoL Materials Innovation Factory

NANOTECHNOLOGY
Graphene-based neural interfaces to monitor brain activity and modulate autonomic input to the heart. Nanoengineered therapeutics

UoM Graphene Institute
UoM GJ Brain Research Centre
UoB Centre Nanoscience
UoL Interdis Neuroscience Centre

ADVANCED IMAGING
Multi-organ imaging (PET-CT, CMR, PET-MR) and molecular phenotyping to enable early detection of heart-brain comorbidities and identify biomarkers

UoM BHF CRE
UoM MCMR
UoB CRIC

DATASCIENCE
Digital twin models of heart-brair and in silico trials for personalized, predictive modeling of heart-brain comorbidities and responses to interventions

UoM BHF CRE: Data & Comp
UoM Data/AI Institute
UoB Isambard AI
UoB JG Institute
UoL Digital Innovation

FUNDAMENTAL BIOSCIENCES
Identifying pathophysiological mechanisms of heart-brain comorbidity with large/small animal models and cutting-edge techniques (e.g. cryo-EM, synthetic biology, ion mobility-MS, single-molecule FRET, next-gen AFM, nano-omics)

UoM BHF CRE
UoM and UoB BRC
UoM Data/AI Institute
UoB JG Institute
UoL Digital Innovation

BEHAVOUR
Multi-modal wearables (EEG, ECG, HRV, skin conductance, motion), at-home monitoring, ambient sensors and digital platforms for real-time profiles of neurocardiac cross-talk

UoB BRC
UoM CP Institute
UoB SPHERE
UoL DIF Centre
UoL M-RIC

ENGINEERING
3D bioprinting, computational fluid dynamics, nanoimprint lithography, micro-electronics and Edge-AI for the creation of devices, computational models, and smart materials that can simulate, monitor, and modulate heart-brain comorbidities

UoM CP Institute
UoM Royce Materials
UoB BioDesign Institute
UoL MIF

EPIDEMIOLOGY
Understanding how heart-brain comorbidities develop and evolve over time, interact with each other, and drive patient outcomes (e.g. Mendelian Randomization, Longitudinal and Life Course Analysis, cohorts including ALSPAC, Causal Mediation Analysis)

UoB MRC Int Epidemiology
UoB BRC
UoM BHF CRE: Data
UoL: Institute Population Health

Approach

Train cohort of students to work together across disciplines to solve complex cardiovascuar problems in the heart-brain axis

- 10 studentships per year: 4 UoM, 4 UoB, 2 UoL
- 4 intakes 2026-2030: 40 students in total
- Cohort multidisciplinary training in Year 1
- Student-led PhD projects co-developed with a cross-site supervisory team

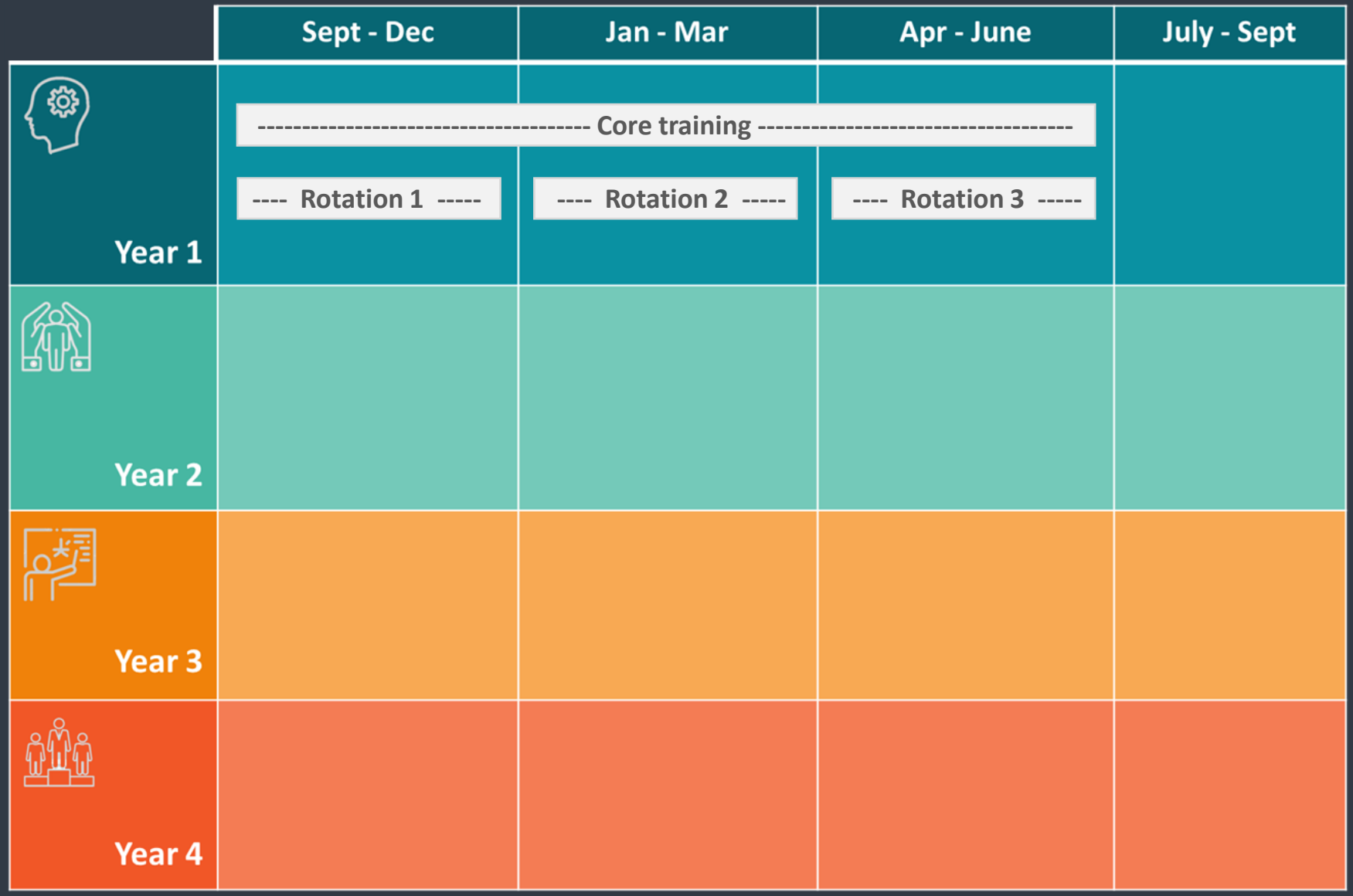
Programme Structure

Programme structure

Year 1: First 9 months

Training and cohort bonding

- Training in core skills and heart-brain axis
  - Delivered in-person (seminars, workshops, student-led activities) and online (learning modules)
- 3 mini project rotations across consortium – different disciplines
  - Rotation 1 & 2 in the Northwest (Manchester or Liverpool)
  - Rotation 3 in Bristol
  - Flexibility in this structure



Project Rotations

Aim: To gain skills and knowledge across disciplines in research related to the heart-brain axis

1) Choose Mini-project

Each institution provides a list of mini-projects offered by a pool of supervisors (~30-40 per institution)

Student chooses mini-project for each rotation

- Choose from a range of disciplines (e.g. discovery bioscience, data science, engineering, epidemiology, materials, behaviour, nanotechnology, imaging)
- Aligned to the heart-brain axis theme

Project Rotations

Aim: To gain skills and knowledge across disciplines in research related to the heart-brain axis

1) Choose Mini-project

2) Undertake Project

Each institution provides a list of mini-projects offered by a pool of supervisors (~30-40 per institution)

Student chooses mini-project for each rotation

Join the supervisor's lab and undertake a 12-week research project

Gain knowledge and skills, join lab activities, capitalise on research network

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2) Undertake Project

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3) Write report

Write a short report on the mini-project and present to peers

Programme structure

End of Year 1

- After rotations, you will choose main supervisor from **host institution** aligned to your research interests
- Co-design PhD project aligned to the heart-brain axis theme
  - Pre-clinical projects but may contain clinical components
- Build a team of supervisors with at least one co-supervisor from another institution
  - Optional industry partnerships

	Sept - Dec	Jan - Mar	Apr - June	July - Sept
Year 1	---------- Core training ----------			
	---- Rotation 1 -----	---- Rotation 2 -----	---- Rotation 3 -----	PhD Proposal
Year 2				
Year 3				
Year 4				

Programme structure

Years 2-4: PhD

- PhD Research Project
- Modules in core skills (e.g. pathways to impact, leadership etc.)
- Opportunities industry secondments
- Yearly consortium symposiums
- National and international conference opportunities
- Career development programme

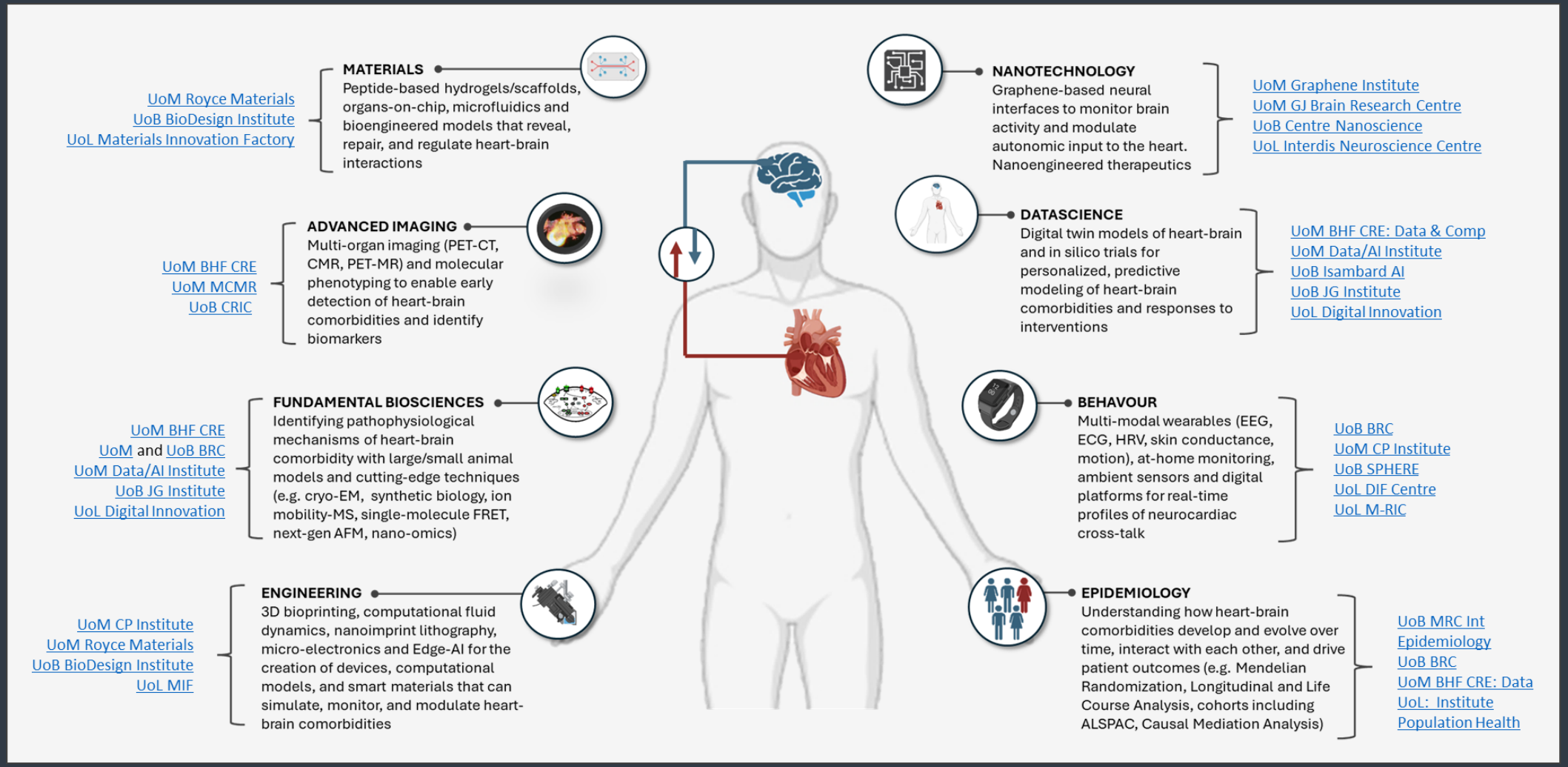
Potential Supervisors

Pool of 100 supervisors across the 3 institutions

- Advanced imaging
- Artificial intelligence
- Behavioural science
- Bioinformatics
- Cell biology & engineering
- Computer science
- Data science
- Discovery biosciences
- Engineering
- Epidemiology
- Immunology
- Material biosciences
- Mathematics
- Nanotechnology
- ‘Omics’
- Translational clinical science

Example Projects

- **We will be uploading some example projects to our website**
- Go online and explore current research projects in our Cardiovascular Research Departments



Application Process

Check Eligibility

We are only accepting HOME (UK) students for this programme

- Programme is only open to home students - International students CANNOT apply

Qualifications

- Applicants must have obtained, or be about to obtain, a First or Upper Second class UK honours degree, or the equivalent qualifications gained outside the UK.

Scientific background

- We actively welcome applications from a diverse range of backgrounds and scientific backgrounds, including cardiovascular science, neuroscience, data science, materials, behavioural sciences, physics, mathematics, epidemiology, nanoscience and engineering.

We welcome student from diverse backgrounds

- We seek to create equality of opportunity for all our applicants and postgraduate researchers. See website for equality, diversity and inclusion (EDI) policies at each institution

How to apply

https://www.bmh.manchester.ac.uk/study/research/funding-fees/funded-programmes/bhf-chain/

Step 1: Choose your host institution

You can only choose ONE host institution

- The host Institution will be your base, provide the main supervisor for your PhD project, and award your final degree

How to apply

https://www.bmh.manchester.ac.uk/study/research/funding-fees/funded-programmes/bhf-chain/

Step 1: Choose your host institution

Step 2: Prepare your supporting documentation

Reference details

- Your referees will be sent an automatic reference request once you submit your application. Please ask them to respond as soon as possible, as you cannot be nominated without these references.

Degree certificates and final/interim transcripts:

- If you are currently enrolled on a Master's programme and do not yet have an interim transcript, please provide alternative proof of enrolment (for example, an offer letter).

Official English language certificates (if applicable):

- Applicants are not required to meet the English language requirements at the point of application. However, if successful, any offer made will be conditional upon the completion of an approved English language test (such as IELTS) and achievement of the required standard.

You are not required to contact potential supervisors, provide a supporting statement, research proposal or formal CV for this programme at this stage.

How to apply

https://www.bmh.manchester.ac.uk/study/research/funding-fees/funded-programmes/bhf-chain/

Step 1: Choose your host institution
Step 2: Prepare your supporting documentation
Step 3: Complete your application

There is an online portal for each institution

- **The University of Manchester** – apply here
- **The University of Bristol** – apply here
- **The University of Liverpool** – apply here

- Complete the application and upload supporting documentation
- IMPORTANT: **Make a note of your unique university ID that is generated on the application**

How to apply

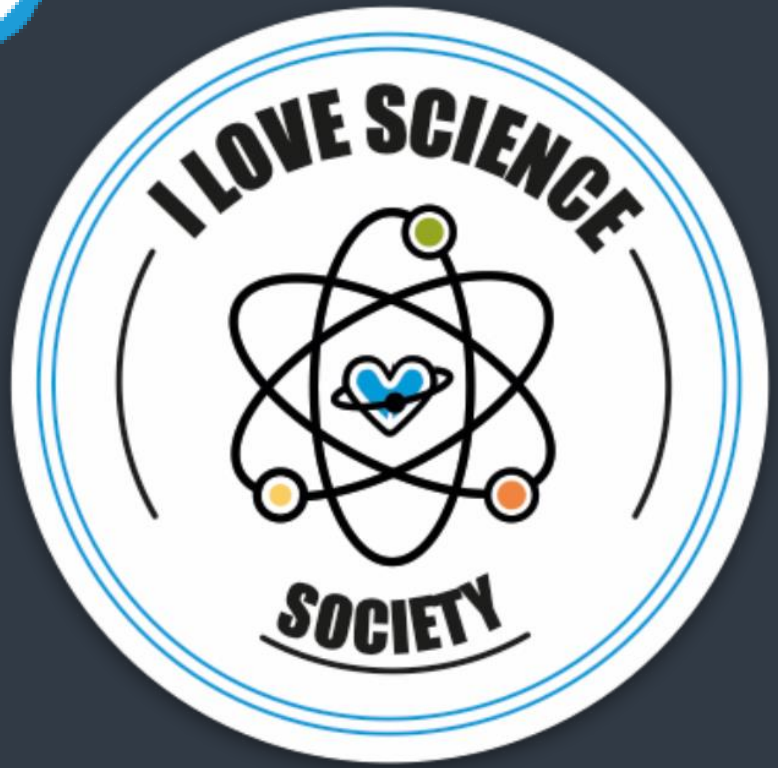
https://www.bmh.manchester.ac.uk/study/research/funding-fees/funded-programmes/bhf-chain/

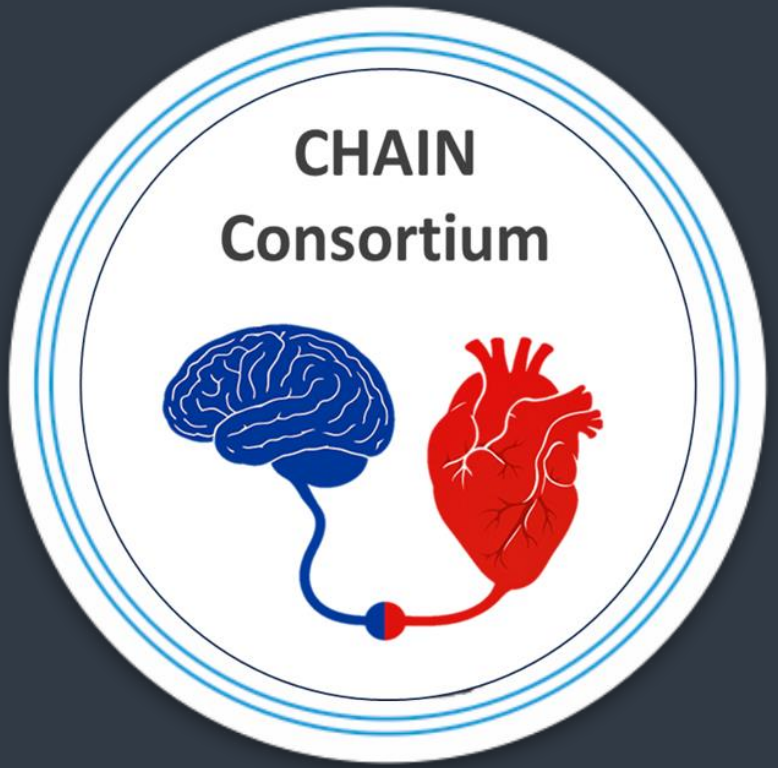
Step 1: Choose your host institution
Step 2: Prepare your supporting documentation
Step 3: Complete your application
Step 4: Complete anonymised CV

There is a separate link to complete an anonymized CV

- To ensure a fair, unbiased, and transparent selection process, all applicants are required to complete an anonymised CV form in addition to the application form.
- This will help our selection panel assess your potential based on merit and skills, without any identifying information that could influence decisions.
- Your application will not be accepted without this

Anonymised CV





Why a PhD?

What's your motivation for doing a PhD? What was your journey to this stage, and what are your long term career goals?

Why YOU?

Expand on relevant knowledge and experience and other skills. Explain any specific circumstances such as career breaks.

Why CHAIN?

Why are you applying to the CHAIN consortium? What interests you about the heart-brain axis and how can you make an impact?

What we're looking for….

Collaborative & open approach

Initiative & innovation

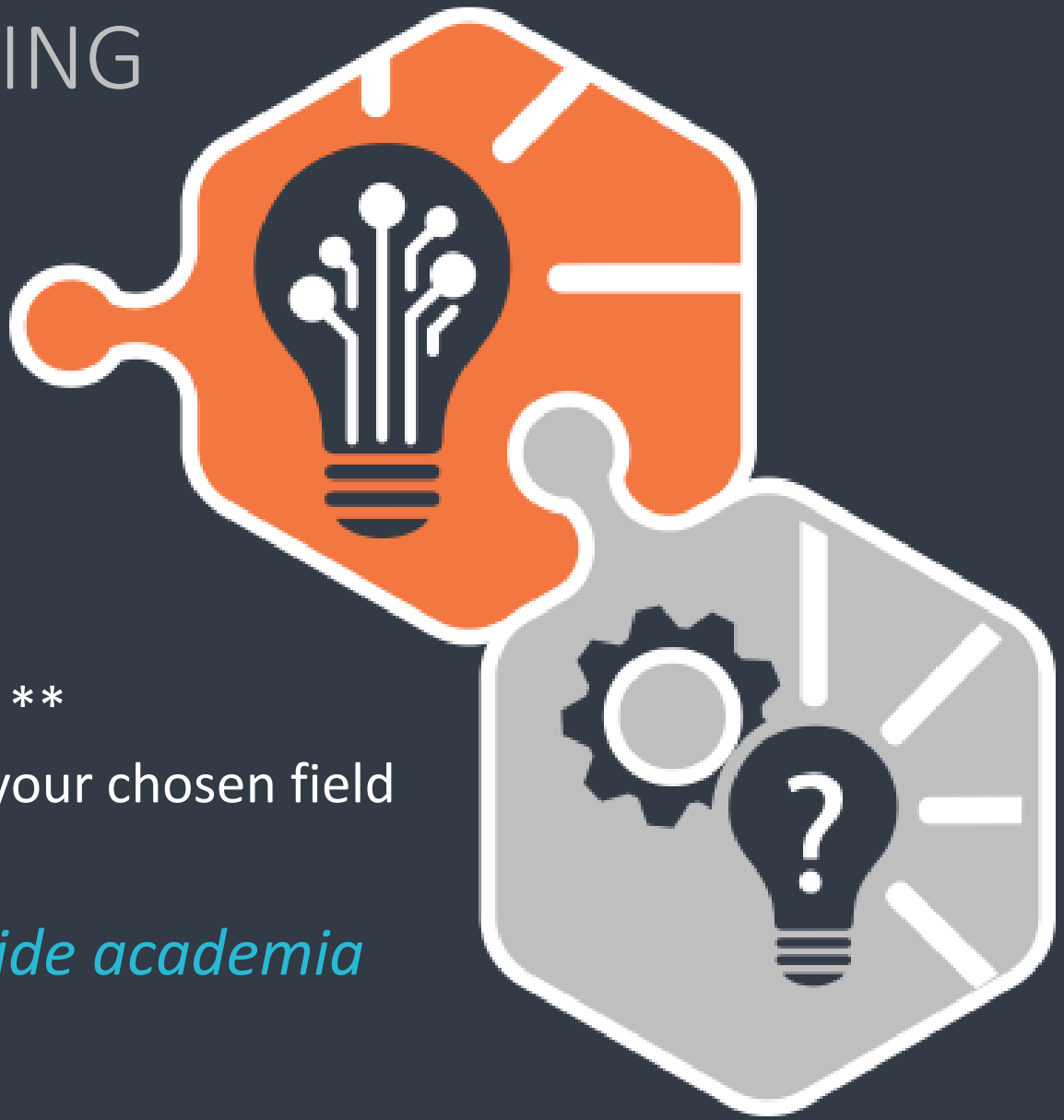
Communication skills

Curiosity & critical thinking

Enthusiasm for your research

Determination & commitment

CURIOSITY & CRITICAL THINKING
INITIATIVE & INNOVATION



How do I demonstrate these?

- UG and/or PG research projects
- Internships
- Summer projects
- Voluntary projects **
- Participation in challenges/competitions **
- Knowledge of the scientific literature in your chosen field

*** These experiences may be from outside academia*

ENTHUSIASM FOR HEALTH & LIFE SCIENCES RESEARCH

How do I demonstrate these?

- A relevant bachelors and/or masters degree *
- Understanding of the major knowledge gaps and challenges in your chosen field
- Knowledge of the scientific literature in your chosen field
- Internships, projects or other experience
- Development of your own ideas for the project
- Corresponding/meeting with potential supervisors

*** BUT we value interdisciplinarity**

DETERMINATION & COMMITMENT

How do I demonstrate these?

- Excellent academic achievement within your degree *
- Prizes ** and scholarships
- Seeing a significant project through to completion **
- Leadership and teamwork **
- Resolving challenging situations, overcoming adversity **

** We are much more interested in how you achieved in your chosen degree programme than which university you attended.*

*** These experiences may be from outside academia*

A COLLABORATIVE & OPEN APPROACH

GOOD COMMUNICATION SKILLS

How do I demonstrate these?

- A track record of group work on projects (of any kind) **
- Science communication **
- Public and/or participant engagement experience **
- Experience writing/publishing **
- Experience giving oral presentations **
- Experience teaching/training others **
- Evidence of leadership and resolving challenging situations **
- Corresponding/meeting with potential supervisors

*** These experiences may be from outside academia*

How to find more information

https://www.bmh.manchester.ac.uk/study/research/funding-fees/funded-programmes/bhf-chain/

If you have any questions about the BHF Multidisciplinary PhD Programme, please contact:

- Manchester: fbmh.doctoralacademy.admissions@manchester.ac.uk
- Bristol: fohs-pgadmissions@bristol.ac.uk
- Liverpool: dtcoordinator@liverpool.ac.uk


Any questions?