

Higher Specialist Scientific (HSS) Training



My journey so far...

Graham Henderson – Lead Clinical Scientist

My career before HSS training

- Undergraduate Honours degree in [Mechanical Design Engineering](#).
- Scottish Medical Physics and Clinical Engineering Training scheme.
- MSc in [Bioengineering](#).
- Completed the training scheme at the SMART Centre and worked as a qualified Clinical Scientist in [gait analysis](#) and [environmental controls](#).
- Moved to Newcastle to take up a role as a Lead Clinical Scientist working in [Custom Design Service](#) and [Gait Analysis Service](#).
- Started HSST.



Why HSS training?

- Two main reasons:
 - To develop Leadership and Management skills
 - To continue working on research themes

HSS overview

	Semester 1	Physical Sciences (Clinical Biomedical Engineering, Medical Physics)				Semester 2			
Year 1	A1 Semester: 1 30 credits	B1 CBE Sem: 1 10 C DL	B2 CBE Sem: 1 10 C DL		A2 Semester: 2 20 credits	B2 MP/ B3 CBE Sem: 2 10 C	B1 MP Sem: 2 10 C	B3 MP Sem: 2 10 C	
Year 2	A3 Semester: 1 30 credits	B6 and B8 MP/ B4 CBE Sem: both 20 credits			A4 Semester: 2 20 credits	A5 Semester: 2 20 credits	B5 Semester: 2 20 credits	B6 CBE Sem: 2 20 C	Project Form
								B4 MP Sem: 2 10 C	
Year 3	C – Research Project	Year 3 workshop – September • How to give a lay talk • Lit review vs systematic review	B9 MP Semester: 1 20 credits		Submit Literature Review	B7 Semester: 2 20 credits	B8 (CBE) Sem: 2 10 C DL	Give Lay Talk	
Year 4	C – Research Project	B9 CBE Semester: ? 10 credits DL	B10 CBE Sem: ? 20 C		Year 4 workshop - January • How to write a thesis • How to write a paper • How to give a professional talk	B10 MP Semester: both 30 credits			
Year 5	C – Research Project							Submit Thesis	Viva voce examination

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HSS progress up to February 2020

	Semester 1 Physical Sciences (Clinical Biomedical Engineering, Medical Physics)				Semester 2			
Year 1	A1 Semester: 30 credits	B1 CBE Sem: 10 C	B2 CBE Sem: 10 C		A2 Semester: 20 credits	B2 MP Sem: 20 C	B3 CBE Sem: 10 C	B4 MP Sem: 20 C
Year 2	A3 Semester: 30 credits	B6 and B8 MP Sem: both 20 credits			A4 Semester: 20 credits	A5 Semester: 20 credits	B5 Semester: 20 credits	B6 CBE Sem: 20 C B4 MP Sem: 20 C
Year 3	C – Research Project	Year 3 workshop – September • How to give a lay talk • Lit review vs systematic review	B9 MP Semester: 1 20 credits		Submit Literature Review	B7 Semester: 2 20 credits	B8 (CBE) Sem: 2 10 C DL	Give Lay Talk
Year 4	C – Research Project	B9 CBE Semester: ? 10 credits DL	B10 CBE Sem: ? 20 C		Year 4 workshop - January • How to write a thesis • How to write a paper • How to give a professional talk	B10 MP Semester: both 30 credits		
Year 5	C – Research Project						Submit Thesis	Viva voce examination

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Obstacles...



- Moved from Newcastle back to Edinburgh.
- Global Pandemic.
- Working on stock control for a face visor manufacturing unit.



HSS progress up to September 2020

	Semester 1 Physical Sciences (Clinical Biomedical Engineering, Medical Physics)				Semester 2			
Year 1	A1 Semester: 30 credits	B1 CBE Sem: 10 C	B2 CBE Sem: 10 C		A2 Semester: 20 credits	B2 MP Sem: 20 C	B3 CBE Sem: 10 C	B4 MP Sem: 20 C
Year 2	A3 Semester: 30 credits	B6 and B8 MP Sem: both 20 credits			A4 Semester: 20 credits	A5 Semester: 20 credits	B5 Semester: 20 credits	B6 CBE Sem: 20 C B4 MP Sem: 20 C
Year 3	C – Research Project	Year 3 workshop – September • How to give a lay talk • Lit review vs systematic review	B9 MP Semester: 1 20 credits		Submit Literature Review	B7 Semester: 2 20 credits	B8 (CBE) Sem: 2 10 C DL	Give Lay Talk
Year 4	C – Research Project	B9 CBE Semester: ? 10 credits DL	B10 CBE Sem: ? 20 C		Year 4 workshop - January • How to write a thesis • How to write a paper • How to give a professional talk	B10 MP Semester: both 30 credits		
Year 5	C – Research Project				Submit Thesis Viva voce examination			

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NES HSS training support



- In Autumn 2020 I was successful in obtaining support from NES to complete my programme.
- My application form explained how I would meet the 3 pillars both via the DClinSci and through on the job training.

HSS progress to date

Semester 1				Physical Sciences (Clinical Biomedical Engineering, Medical Physics)				Semester 2							
Year 1	A1 Semester: 1 30 credits	B1 CBE Sem: 1 10 C	B2 CBE Sem: 1 10 C	A2 Semester: 2 20 credits	B2 MP Sem: 2 10 C	B3 CBE Sem: 2 10 C	B4 MP Sem: 2 10 C	A3 Semester: 1 30 credits	B6 and B8 MP B4 CBE Sem: both 20 credits	A4 Semester: 2 20 credits	A5 Semester: 2 20 credits	B5 Semester: 2 20 credits	B6 CBE Sem: 2 20 C	B4 MP Sem: 2 10 C	Submit Research Project
Year 2															
Year 3	C – Research Project	Year 3 workshop – September • How to give a lay talk • Lit review vs systematic review	B9 MP Semester: 1 20 credits		Submit Literature Review	B7 Semester: 2 20 credits	B8 (CBE) Sem: 2 10 C								
Year 4	C – Research Project	B9 CBE Semester: ? 10 credits DL	B10 CBE Sem: ? 20 C		Year 4 workshop - January • How to write a thesis • How to write a paper • How to give a professional talk	B10 MP Semester: both 30 credits									
Year 5	C – Research Project														

HSS research project

- To investigate the effectiveness of existing environmental control systems. Exploring whether these devices are meeting peoples' needs and having a positive impact on their lives.
- To investigate the potential of using smart glasses for interacting with assistive technology.



HSS training plan

HSST Training Plan - Standard of Proficiency Map						
Name	Graham Henderson					
Specialism	Clinical Biomedical Engineering					
Year		Year 1	Year 2	Year 3	Year 4	Year 5
STANDARD 1 - EXHIBIT KNOWLEDGE AND UNDERSTANDING OF THE PROFESSION IN A JOB	1.1	Demonstrate an understanding of Good Scientific Practice at Consultant (Clinical Scientist level)	Good Science module 1-3	Good Science module 1-3		
	1.2	Comply with the code of conduct of the Health and Care Professions Council, and the Academy for Healthcare Science	Being on the decision panel for the HCC professional code	Good Science module 1-3		
	1.3	Ensure that conduct at all times justifies the trust of patients and colleagues and maintains the public's trust in the profession	Being on the decision panel for the HCC professional code	Good Science module 1-3		
STANDARD 2 - EXHIBIT PROFESSIONALISM IN WORKING WITH PATIENTS AND WITH OTHERS	2.1	Lead a team to work effectively with other colleagues in cross-professional settings and across organisational boundaries	Good Science module 1-3	Being on the decision panel for the HCC professional code		
	2.2	Lead a team to work in partnership with colleagues and other organisations in the best interests of patients, local communities and the wider population	Good Science module 1-3	Being on the decision panel for the HCC professional code		
	2.3	Create a culture of openness with patients, their families, carers or representatives and colleagues, including if anything goes wrong, welcoming and listening to feedback and addressing concerns promptly	Good Science module 1-3	Being on the decision panel for the HCC professional code		
	2.4	Communicate complex clinical scientific and technical information in a wide range of settings and formats, including to patients and the public	Good Science module 1-3	Being on the decision panel for the HCC professional code		
	2.5	Interact with press, clinical peers of the service, patients and the public on all aspects of service delivery to ensure that the service is fit for purpose	Good Science module 1-3	Being on the decision panel for the HCC professional code		
	2.6	Communicate research, innovative and development findings at appropriate, including peer-reviewed journals and at national and international conferences	Good Science module 1-3	Being on the decision panel for the HCC professional code		
STANDARD 3 - EXHIBIT ACCOUNTABILITY FOR EXERCISING RESPONSIBILITY WITH THE GOVERNANCE AND RISK MANAGEMENT FRAMEWORKS FOR A LOCAL COMMUNITY SERVICE	3.1	Account overall accountability for exercising responsibility with the governance and risk management frameworks for a local community service	Good Science module 1-3	Being on the decision panel for the HCC professional code		
	3.2	Demonstrate a high level of professionalism in personal	Good Science module 1-3	Being on the decision panel for the HCC professional code		

HSS training plan

Year 2 (2021-2022)	Continuation of academic component of HSST scheme (£6,300)	NHS Lothian	Sep 2021	August 2022	12 months	Michael Dolan	Michael.dolan@nhslothian.scot.nhs.uk
Year 2	Research project (no cost)	NHS Lothian	Sep 2021	August 2022	12 months	Michael Dolan and academic supervisor TBC	Michael.dolan@nhslothian.scot.nhs.uk and academic supervisor TBC
Year 2	Review and implementation of new biomechanical models (no cost)	NHS Lothian	March 2022	August 2022	6 months	Michael Dolan	Michael.dolan@nhslothian.scot.nhs.uk
Year 2	Review of public engagement within the department (no cost)	NHS Lothian	March 2022	April 2022	2 months	Michael Dolan	Michael.dolan@nhslothian.scot.nhs.uk
Year 3 (2022-2023)	Continuation of academic component of HSST scheme (£6,300)	NHS Lothian	Sep 2022	August 2023	12 months	Michael Dolan	Michael.dolan@nhslothian.scot.nhs.uk
Year 3	Research project (no cost)	NHS Lothian	Sep 2022	August 2023	12 months	Michael Dolan and academic supervisor TBC	Michael.dolan@nhslothian.scot.nhs.uk and academic supervisor TBC

Future plans

- Recently taken up a more senior position within the SMART centre and I want to further develop in this role by utilising the leadership and management skills that I have gained.
- I would like to use my research project as a vehicle to develop academic links with Universities and to look at applying for grants to undertake more research.
- Continue implementing new technologies within the services that I lead and to work with colleagues to develop new services within the assistive technology field.

Reflections on HSS training

- Important to emphasise the amount of work undertaken in your own time.
- Need to have a supportive department and scope to use projects that you are already working to form the basis of your assignments.
- Some of the modules could be more focused on clinical engineering.
- Ultimately worthwhile and the skills and knowledge you learn and can have a real impact on the services that you work in.

