

DClinSci – Medical Physics/Clinical Biomedical Engineering

Co-Directors:

Prof Karen Kirkby

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Programme Administrator:

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Programme Timetable

	Semester 1			<i>Physical Sciences (Clinical Biomedical Engineering, Medical Physics)</i>				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	B4 MP Sem: 2 10 C	Submit Research Project Form
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

CBE B Units - Year 1

- B1: Clinical practice for clinical biomedical engineers: Distance Learning Unit.
- B2: Systems engineering: Distance Learning Unit.
- B3: Clinical computing: Taught unit with MP trainees – The Christie, Manchester.

CBE B Units – Yrs 2-4

- B4: Health economics/health technology assessment: Double unit taught with MP trainees at UoL. Taught in Year 2.
- B6: Modelling and simulation: Distance learning unit.
- B8: Specialist clinical biomedical engineering practice/B9: Specialist clinical biomedical engineering skills: Double distance learning unit.
- B10: Leading CBE Services: Distance learning unit.

Medical Physics Expert (MPE)

The MPE should be:

- closely involved in every radiotherapeutic practice other than standardised therapeutic nuclear medicine practices;
- available in standardised therapeutic nuclear medicine practices and in diagnostic nuclear medicine practices;
- involved as appropriate for consultation on optimisation, including patient dosimetry and quality assurance, and to give advice on matters relating to radiation protection concerning medical exposure, as required, in all other radiological practice (SI 2000 No 1059).
- Units B1, B3 and B4 are the recognised MPE units in DClinSci.

Medical Physics – Year 1

- B1: Medical Equipment Management: Taught at The Christie in Manchester.
- B2: Clinical and Scientific Computing: Taught at The Christie – with CBE trainees.
- B3a: Dosimetry
- B3b: Non-Ionising Radiation Biological Effects and Safety Advice: B3a and B3b taught at The Christie over the same two days. Separate sessions for RT/Imaging and Non-ionising trainees.

MP B Units – Year 2

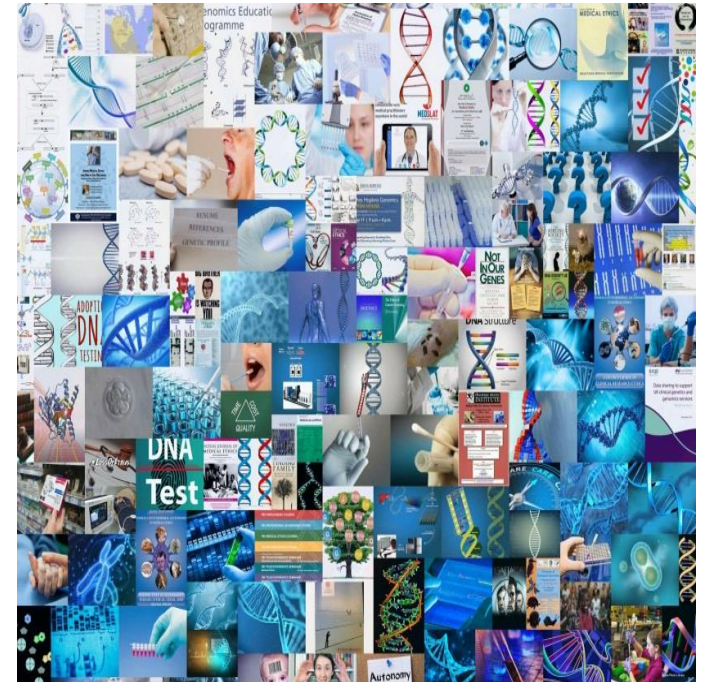
- B4: Optimisation of Radiotherapy and Imaging: This two day taught unit encompasses RT/Imaging and Non-Ionising Radiation elements.
- B6: Medical Statistics for Medical Physics: Taught at UoL with CBE trainees.
- B8: Health Technology Assessment: Taught at UoL with CBE trainees.

B5: Contemporary Issues in Healthcare

For physiological and physical sciences

Module tutor: Dr Kai Uus from Division of Human Communication, Development and Hearing, School of Health Sciences, FBMH; e-mail: kai.uus@manchester.ac.uk

- Online material from January 2019
- 3 days of face-to-face workshops:
 - **19 February 2019:** PPI
 - **10 & 11 June 2019:** Genomics
- **Assignment:** Reflection and creative project addressing the ‘disorienting dilemma’ submission date: **1 July 2019**



Student feedback

“Never done anything like that before.”

“I would also like to thank you again for a very interesting module that you put together. While I’m not sure I completed understood everything, it has given me a much better understanding and has stimulated some fascinating discussions in the office tea room.”

“I just wanted to say that I really enjoyed it – particularly the very first lecture and having to do the “creative” assignment. It’s been great having to think outside the box a bit with that, and some people on the course seemed to have some fantastic ideas, so thank you for organising.”

“Many thanks for an interesting 3 days, and module as a whole. It has been thought provoking.”

“I would also just like to say thank you for such an interesting and thought provoking module. I really found it fascinating. I want a new career in genetics!”

“It’s a bit crazy, but in a fun way.”



The artwork in these slides is made by HSST students as part of the assignment

B7: Curriculum Development and Teaching Methodology

For physiological and physical sciences

Professor Judith Williams University of Manchester

Dr Garry McDowell Manchester Metropolitan University

- Online material from January 2019
- 2 days of face-to-face workshops:
 - **14&15 January 2019**
- **Assignment:** Action Research Group Teaching project: 20 minutes to deliver a group teaching session due: **8 May 2019**



MP B Units – Years 3-5

- B9: Clinical Applications of Medical Imaging Technologies in Radiotherapy Physics: Double taught unit for all MP trainees.
- B10 choices
- MP trainees need to complete 3 10 credit B10 units. These can be taken over years 3-5 and not all units are offered in each academic year.

MP B10 compulsory units

- B10a: Advanced Radiobiology: Compulsory taught unit for RT trainees. This is run by the Royal College of Radiologists at The Christie. HSST trainees will join for 3 of the 5 days.
- B10b: Assessment of Image Quality: Compulsory taught unit for Imaging trainees at The Christie.

B10 choices

- Trainees can choose two other B10 units. If trainees are interested in a 4th unit they can apply to attend the taught element. They will not undertake the assessment and agreement to take the unit must be given by the Programme Director and the workplace supervisor.
- Apart from the compulsory units all other B10 units are subject to change and will run only if a viable cohort is recruited.

B10 choices – annually offered

- B10c: Novel and specialised external beam RT:
This unit is run by the Christie summer school and HSST trainees join in the taught sessions. Bespoke HSST workshops will be offered during the week.
- B10f: Radiation Protection Advice: This taught course is run by The Royal Marsden in London.

B10 choices – bi-annually offered

- B10d: Advanced Brachytherapy techniques
- B10e: Novel Imaging Techniques
- B10g: Radioactive materials, waste and transport advice
- B10i: Ionising radiations instrumentation specialisation
- B10j: Mathematical techniques in medical imaging

Cont'd

- B10k: Radiopharmaceuticals and Radiopharmacy: offered at KCL
- B10l: Targeted Radionuclide Therapy
- B10m: Advanced Computing Techniques: offered at Queen Elizabeth Hospital, Birmingham.

Additional Training

- Geant4