

Plymouth University

Plymouth University Peninsula Schools of Medicine and Dentistry

School of Biomedical and Healthcare Sciences

Programme Specification

MSc Clinical Cardiac Science

2018/19

1. MSc Clinical Cardiac Science

Final award title: MSc Clinical Cardiac Science

Level 7 Intermediate award title(s)

Post-graduate Diploma in Clinical Cardiac Science (120 credits)

Post-graduate Certificate in Clinical Cardiac Science (60 credits)

UCAS code: NA

JACS code: B900

2. Awarding Institution: University of Plymouth

Teaching institution(s): University of Plymouth

3. Accrediting body(ies)

Not Applicable (NA) - we will seek programme 'approval' by Registration Council for Clinical Physiologists

Summary of specific conditions/regulations: NA

Date of re-accreditation: NA

4. Distinctive Features of the Programme and the Student Experience

The key features of our programme in Clinical Cardiac Science are:

- Largely targeting intercalating medical students, this programme provides a specific opportunity to advance knowledge in clinical cardiac science
- Unique features include the opportunity to take the SCST certificate in electrocardiography
- Emphasis is placed on clinical cardiac science with masterclasses in relevant topics offered by leading specialists in the southwest region
- The only course of its kind to be offered in the southwest region
- May also interest nurses, paramedics and high flying biomedical science graduates wishing to specialise.

- A coherent, progressive curriculum ensuring competence in core knowledge, personal and practical skills designed to enhance the students' academic performance and professional development.
- Enthusiastic, accessible and committed academic and clinical staff that offer student support via personal tutoring throughout their programme of study.
- Teaching and Learning informed by nationally recognised scholarship and professional expertise in clinical cardiology and pedagogy.
- A learning environment enriched by the presence of a “critical mass” of healthcare education in the form of the Peninsula Schools of Medicine and Dentistry, well-equipped modern laboratories and facilities, plus the legacy of the Centres of Excellence in Teaching and Learning.

5. Relevant QAA Subject Benchmark Group(s)

Whilst, there are no Subject Benchmarks for postgraduate awards in Clinical Cardiac Science, consideration has been made of the QAA benchmark statements for medicine and the specialty training curriculum for cardiology.

6. Programme Structure

The MSc Clinical Cardiac Science degree is a one year programme when taken full-time. Options are available to be taken part-time or as a Postgraduate Diploma for students not wishing to undertake a research project. A Postgraduate Certificate in Clinical cardiac science is available for those wishing to enhance knowledge as part of CPD activity within their careers. The programme is designed to be attractive to Medical students wishing to intercalate in a clinical specialism and enable students with related degrees to retrain in the area of clinical cardiac science. A key feature of the programme is the involvement of clinical experts.

The award focuses on training within the clinical cardiology discipline integrating the depth of detail and underpinning knowledge of cardiac disorders aligned with the diagnostics used in clinical assessments and inclusion of current treatment and management options for cardiac disorders. Students will gain depth of detail and knowledge of normal and abnormal cardiac physiology, the technological detail and limitations of current diagnostic measurements in practice. This is enhanced by the involvement of leading clinical experts in their

field, who will offer masterclasses and case based discussions. The masterclasses will also be offered for interprofessional learning where students from other degrees e.g. undergraduate medicine will be able to attend.

Students on this programme will be given the opportunity to complete the Society for Cardiological Science and Technology (SCST) Award in ECG which upon successful completion, enables graduates to work in a range of cardiac healthcare settings to deliver quality assured tests, diagnostic investigations and interventions for patients/clients.

The MSc is delivered over a period of one year full-time with options available for completion part-time. Modules are organized into 20, 30, 40 and 60 credit units with sharing of resource and expertise within the School of Biomedical and Healthcare Sciences and Plymouth University Peninsula Schools of Medicine and Dentistry.

The MSc Programme pathway with its component modules is displayed in Figure 6.1 below. This Figure also shows the exit routes for those taking the Pg Cert or Pg Diploma. Figure 6.2 shows the Programme pathway for those taking the MSc part-time. The programme is developed and delivered by expert academics and NHS Clinical Cardiologists and Cardiac Physiologists with substantial recognition nationally within their fields of expertise.

6.1 Programme Overview

The MSc Clinical Cardiac Science is designed to provide specialist knowledge within the areas of cardiac pathophysiology, diagnostics and technological advances in imaging alongside current and future treatment strands. The programme is delivered by experts in clinical cardiology and imaging within the South West with theoretical background and molecular mechanisms of disease taught by expert academics within the field.

The Programme consists of 5 modules. In brief, the first module (BHCS5001, applied cardiac sciences) introduces the basics of ECG measurement and continues with investigating the pathophysiology, diagnostics and treatment of arrhythmias and coronary artery disease. BHCS5002 (project design and development) is a preparatory module for undertaking and critically evaluating

research. It provides students with the knowledge to understand and critically review current scientific literature and skills associated with project design, development and knowledge transfer. BHCS5003 (research project and dissertation) comprises of independent self-directed study under the guidance of a project advisor. It includes the development of a research question or hypothesis, associated design and execution of a research study to improve research knowledge or service provision within healthcare. BHCS5004 (advanced clinical cardiac sciences) begins with an evaluation of cardiac embryology and the genesis of congenital heart disease. It then continues with discussion and cases centred around the pathophysiology, diagnosis and treatment of structural heart disease. At the end of this module students will be given the opportunity to take the SCST award in electrocardiography. The final module BHCS5005 (medical images: principles and practice) provides a familiarisation with the functions and characteristics of medical imaging equipment used for assessing and recording key physiological and pathophysiological parameters. It will provide detailed information on the application of cardiac imaging to the assessment of the heart's structure and function in health and disease.

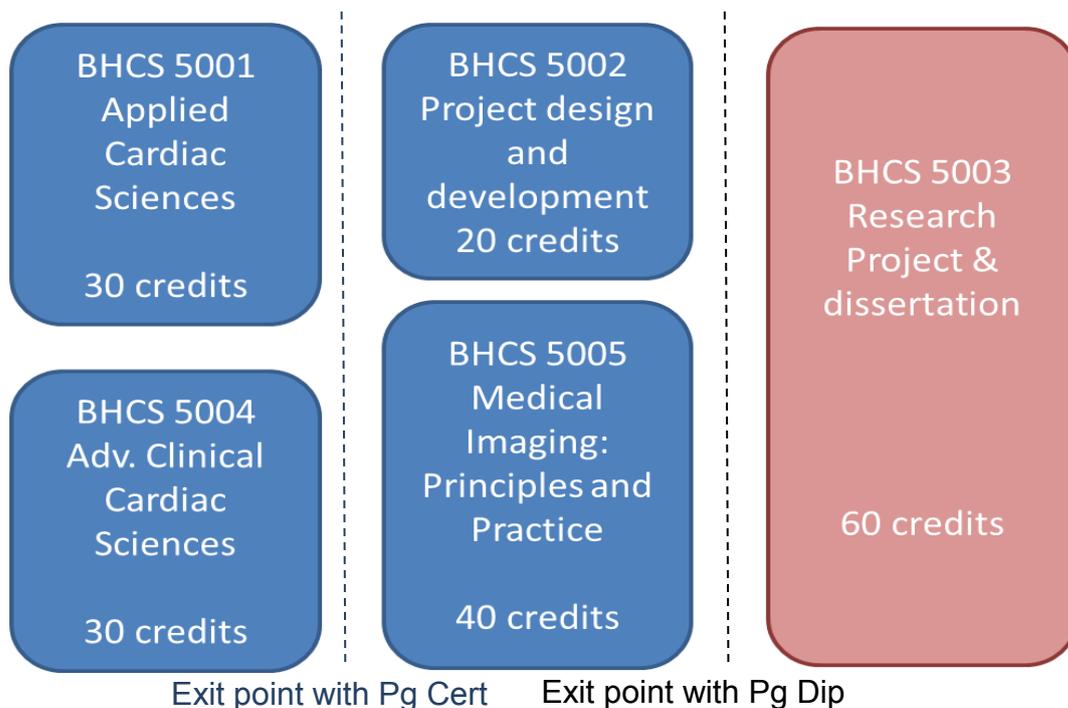


Figure 6.1 Structure of MSc Clinical Cardiac Sciences programme

Students will undertake all modules for award of the MSc. Programme modules are 20 credits and above with specialist modules in clinical cardiology and medical imaging alongside a project design module and a masters level Research project module. Exit points for students taking the Pg Dip and Pg Cert are also shown.

6.2 Postgraduate Diploma

The Postgraduate Diploma Clinical Cardiac Science may be awarded following the successful completion of 120 credits as outlined in Figure 6.1.

6.3 Postgraduate Certificate

The Postgraduate Certificate Clinical Cardiac Science may be awarded following the successful completion of the modules BHCS5001 (30 credits) and BHCS5004 (30 credits).

6.4 Part-time option

Students will also be able to take the MSc part-time over 2 years. This would involve the completion of BHCS 5001 applied cardiac sciences; BHCS 5004 advanced clinical cardiac sciences; and, BHCS 5000 medical imaging: principles and practice in year 1 and BHCS 5002 project design and development and BHCS 5003 research project and dissertation in year 2. See Fig. 6.2.

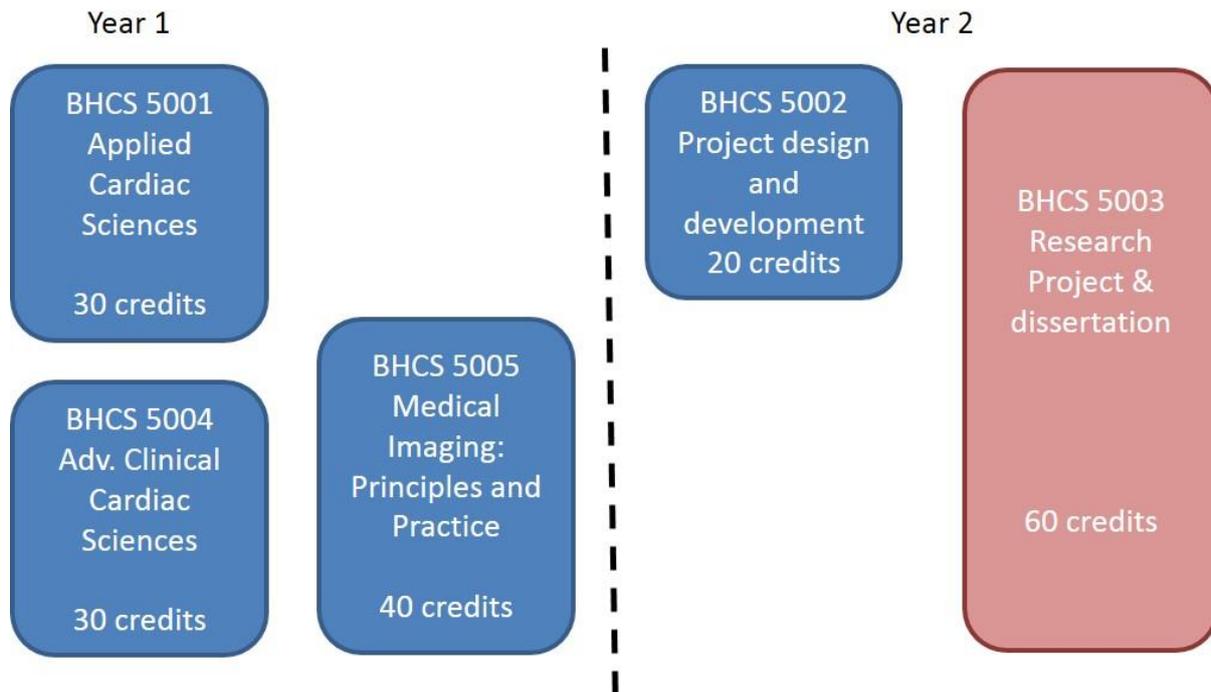


Figure 6.2 Structure of MSc Clinical Cardiac Sciences part-time programme
Students will undertake all of the modules as for the full-time programme. However, part-time students will take 3 modules in their first year and two modules in their second year.

7. Programme Aims

Overall aims of Postgraduate Taught Programmes in the School of Biomedical and Healthcare Sciences

- provide opportunities for postgraduate students from a range of biomedical, medical and physiology backgrounds to develop and realise their potential in clinical cardiology in a supportive and responsive environment;
- provide modular programmes which are vocationally specific, intellectually challenging and relevant to careers in clinical cardiac science and medical imaging within healthcare practice
- equip students with advanced clinical, scientific and technical knowledge and understanding of the subject area together with the cognitive, practical and specialist skills needed in employment or courses of further study;
- further develop students' ability to operate professionally, ethically, innovatively and autonomously within complex specialised contexts in healthcare.

Educational aims of the MSc / PGDip Clinical Cardiac Science programme

To provide students with:

- advanced knowledge, understanding and skills required for the systematic study of their chosen discipline(s) of Cardiology and Medical Imaging through the application of contemporary methodologies and technologies
- ability to analyse complex situations and apply critical, analytical and problem solving skills to synthesise innovative responses in unpredictable environments
- advanced skills in information gathering, interpretation, critical analysis and evaluation and the formulation of recommendations in a professional scientific context;
- practical and technological expertise appropriate to contemporary practice in their chosen discipline(s);
- professional communication and interpersonal skills;
- ability to design and self-manage a research project
- ability to recognise the significance and contribution of their research to existing published work **(MSc only)**
- skills of planning and management of learning which will enable their continual professional development after the completion of the course.

8. Programme Intended Learning Outcomes

8.1. Knowledge and understanding

On successful completion graduates should have developed:

- 1) Knowledge base: has depth and systematic understanding of knowledge in specialised/applied areas and/across areas in clinical cardiac science and can work with theoretical/research-based knowledge at the forefront of their discipline
- 2) Disciplinary methodologies: has a comprehensive understanding of techniques/methodologies applicable to clinical cardiac science (theory or research-based)

8.2. Cognitive and intellectual skills

On successful completion graduates should have developed:

- 1) **Analysis:** with critical awareness can undertake analysis of complex, incomplete or contradictory areas of knowledge in clinical cardiac science communicating the outcome effectively

- 2) **Synthesis:** with critical awareness, can synthesise information in a manner that may be innovative, utilising knowledge or processes from the forefront of their clinical cardiac science discipline/practice
- 3) **Evaluation:** has a level of conceptual understanding that will allow her/him critically to evaluate research, advanced scholarship and methodologies in clinical cardiac science and argue alternative approaches
- 4) **Application:** can demonstrate initiative and originality in problem solving in clinical cardiac science. Can act autonomously in planning and implementing tasks at a professional or equivalent level, making decisions in complex and unpredictable situations

8.3. Key and transferable skills

On successful completion graduates should have developed the ability to:

- 1) **Learning resources:** is able to use full range of learning resources applicable to clinical cardiac science
- 2) **Management of information:** can competently undertake research tasks in clinical cardiac science with minimum guidance (**MSc only**)
- 3) **Autonomy:** is an independent and self-critical learner of clinical cardiac science, guiding the learning of others and managing own requirements for continuing professional development
- 4) **Communications:** can engage confidently in academic and professional communication with others involved in clinical cardiac science, reporting on action clearly, autonomously and competently

8.4. Employment related skills

On successful completion graduates should have developed:

- 1) **Self-evaluation:** is reflective on own functioning and has the independent learning ability required for continuing professional development in clinical cardiac science
- 2) **Clinical Skills:** competence in completion of 12-lead ECG and interpretation, quality and compliance within medical imaging.
- 3) **Autonomy:** ability to work within limits and scope of the field of expertise and seek advice from peers and colleagues when necessary. Respects the rights, dignity and confidentiality of patients / patient details in context of professional conduct and research activity.

8.5. Practical skills

On successful completion graduates should have developed:

- 1) **Application of skills:** can operate in complex and unpredictable, possibly specialised contexts, and has an overview of the issues governing good scientific practice relating to clinical cardiac science.
- 2) **Autonomy in skill use:** is able to exercise initiative and personal responsibility in professional practice within clinical cardiac science.
- 3) **Technical expertise:** has technical expertise, performs smoothly with precision and effectiveness; can adapt skills and design or develop new skills or procedures for new situations

9. Admissions Criteria, including APCL, APEL and DS arrangements

All applicants must have GCSE (or equivalent) Maths and English at Grade C/4 or above.

9.1 Entry Requirements

Applicants will normally possess:

- An honours degree from a UK University or Institute of Higher Education, at the level of a upper second or above in a relevant subject with a significant level of knowledge from Cardiology, Physiological Science or medical related discipline to the Specialist Subject to be studied.
- Applicants with overseas qualifications can check their comparability with the UK equivalent through UK NARIC, who provide an advisory service.

OR

- Such other qualifications and experience deemed equivalent by the Programme Manager in subject content and level of attainment to any of the above.

In addition

- Applicants who have not had their secondary or tertiary education through the medium of English should have attained the equivalent of an IELTS score of at least 7.0 with a minimum of 6.5 in each component.

In addition

Conducting medical diagnostic tests (e.g. performing an ECG) requires the highest standards and we take seriously our commitment to enrol, and teach, only those students with the integrity needed to meet these requirements. Detailed information

relating to the Medical Student Agreement, Fitness to Practise and students with disabilities can be found on the Plymouth University website:

<https://www.plymouth.ac.uk/courses/undergraduate/bds-dental-surgery/student-conduct-and-fitness-to-practise>.

A fitness to practise assessment prior to admission involves the following:

- A health assessment screening (some conditions may be incompatible with working in medicine)
- Mandatory screening for Hepatitis C and HIV. Candidates who screen positive for Hepatitis C or HIV will not be admitted to the School
- Hepatitis B screening & immunisation (Hepatitis B antigen positive candidates may be unable to work in medicine – the School will offer advice to students)
- Satisfactory clearance under an enhanced disclosure from the Disclosure and Barring Service

9.2 Intercalation

The MSc Clinical Cardiac Science degree is a one-year full-time programme. Medical students are therefore able to complete the standard programme as an intercalating year.

Students on the Bachelor of Medicine, Bachelor of Surgery (BMBS) at Plymouth University Peninsula Schools of Medicine and Dentistry (PUPSMD) or from an external HEI provider have the opportunity to explore another discipline at degree or MSc level through Plymouth University degree programmes. Metrics based upon performance since admission to the BMBS and BDS programmes will be used to calculate the highest performing students in each year and selection into the MSc Clinical Cardiac Science programme will be based upon these.

Due to the structure of the medical and dental programmes, students on the BMBS at Plymouth University take their intercalated year between years 4 and 5 of their medical studies. The exact time-point when intercalation occurs in medical and dental programmes at other universities may vary.

Applications from students on Medical programmes from external HEIs will need to demonstrate they have the relevant knowledge, skill and professionalism through merit obtained in previous years at their HEI.

Candidates may need to seek academic leave of absence from their host institution and be available for interview as part of the selection process.

9.3 Equality of Opportunity

The University aims to ensure that all applicants receive fair treatment. In line with its Strategic Plan, the University has strategies to promote equality of opportunity, widen participation and encourage access.

Further information on equality for students can be found at:

https://www.plymouth.ac.uk/uploads/production/document/path/7/7108/Equality_and_Diversity_policy_Aug_2016_v.1.1_2_.pdf

We welcome and support students with disabilities, and we endeavour to meet specific needs. The Disability Services, based on the Plymouth Campus, supports disabled students across the University. Further information about the advice and support before, during and after application can be found at:

<https://www.plymouth.ac.uk/your-university/about-us/university-structure/service-areas/equality-diversity-and-inclusion/support-for-people-with-disabilities>

The nature of certain projects requires you to be compliant and able to operate in a laboratory setting. It is important for us to consider any individual requirements sufficiently far in advance to enable us to advise you on the range of options available and to put in place appropriate arrangements. Students will be advised to tell us about any disability upon application.

There may be rare occasions when, following professional assessment of a disability, a student's suitability for admission may be affected. However, we will take a positive view and will try to meet the needs of students with disabilities by making, where possible, reasonable adjustments to their programme of study.

9.4 Accreditation of Prior Certificated Learning (APCL) and Assessment of Prior Experiential Learning (APEL)

The University's regulations for Accreditation of Prior Certificated Learning (APCL) and Assessment of Prior Experiential Learning (APEL) are set out in

the 'University Academic Regulations': <https://www.plymouth.ac.uk/student-life/your-studies/essential-information/regulations>

We may also consider admission on the basis of work or life experience.

We welcome evidence of prior learning and experience from applicants. Due to the range and mixture of prior qualification and experience applications presenting such evidence will be considered on an individual basis by the Admissions Tutor in consultation with the programmes team.

Students with relevant postgraduate awards from other institutes may be able to apply for advanced entry subject to the Faculty's accreditation of prior learning procedures.

10. Progression criteria for Final and Intermediate Awards

The MSc Programme encompasses three possible award levels: MSc Clinical Cardiac Science (following successful completion of 180 credits); and, exit awards of Postgraduate Diploma Clinical Cardiac Science (following successful completion of all core modules with the exception of the Research Project and Dissertation module (120 credits); and, Postgraduate Certificate Clinical Cardiac Science (Following successful completion of BHCS5001 and BHCS5004 (60 credits)).

11. Non Standard Regulations

None.

12. Transitional Arrangements

Students undertaking part-time awards will require a minimum of 60 credits per academic year for progression to PG Diploma or MSc.

Appendices

Appendix 1: Programme Specification Mapping (PGT)

Appendix 2: Operational Specification: mapping of Award Learning Outcomes

Appendix 2

Operational Specification: mapping of Award Learning Outcomes. Insert rows and columns as required.

| Module Code | Level | Credits | C - core E - elective | Award Learning Outcomes (for more information see Section 8 of the Programme Specification) Please map where a module does one or more of the following: I – ALO is introduced P – ALO is practised (e.g. formative assessment and feedback; basis of tutorial or workshop) A – ALO is assessed | | | | | | | | | | | | | | | | | | |
|-------------|-------|---------|--------------------------|--|-----|---|---|-------------------------------------|-----|-----|-----|-------------------------------|-----|-----|-----|-------------------------------|-----|-----|---|----------------------|-----|-----|
| | | | | 8.1 Knowledge & understanding | | | | 8.2 Cognitive & intellectual skills | | | | 8.3 Key & transferable skills | | | | 8.4 Employment related skills | | | | 8.5 Practical skills | | |
| | | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 |
| BHCS 5001 | 7 | 30 | C | IPA | IPA | | | IPA | IPA | IA | IPA | IPA | - | IPA | IPA | IPA | IPA | IPA | | IPA | IPA | IPA |
| BHCS 5002 | 7 | 20 | C | IPA | IPA | | | PA | PA | IPA | IPA | IPA | IPA | PA | - | IPA | - | - | | - | - | - |
| BHCS 5003 | 7 | 60 | C | IPA | IPA | | | IPA | IPA | PA | PA | PA | IPA | PA | PA | PA | - | PA | | IPA | IPA | IPA |
| BHCS 5004 | 7 | 30 | C | IPA | IPA | | | IPA | IPA | - | PA | IPA | - | IPA | IA | IA | - | - | | PA | PA | PA |
| BHCS 5005 | 7 | 40 | C | IPA | IPA | | | IPA | IPA | PA | IPA | IPA | - | IPA | IPA | PA | PA | PA | | IPA | IPA | IPA |
| | | | | | | | | | | | | | | | | | | | | | | |
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