# Cohorts 1 and 2 – Section C guidance

## Contents



## C2: Research Project (thesis)

C2 forms the major research project of the DClinSci. As such it is expected to meet the academic standards set for doctoral research. For a professional doctorate the research may be embedded in professional practice, driven by a problem identified from a 'real world' context, making a creative and critical intervention in that context, and leading to a practical outcome, as well as a theoretically informed written thesis. Regardless of the nature of the project the examiners will judge the work against the following criteria:

Doctoral degrees are awarded to trainees who have demonstrated:

- The creation and interpretation of new knowledge, through original research or other advanced scholarship. This new knowledge must be of a quality to satisfy peer review, extend the forefront of the discipline and merit publication.
- Significant contribution towards the development of novel and innovative research.
- A systematic acquisition and understanding of a substantial body of knowledge that is at the forefront of an academic discipline or area of professional practice.
- The general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline, and to adjust the project design in the light of unforeseen problems.
- A detailed understanding of applicable techniques for research and advanced academic enquiry.

Proposal

The Programme Administrator will circulate the C2 pro-forma and trainees will be required to submit their proposal to the Programme Administrator. C2 projects may be a continuation of C1 or may be a completely new project. C2 proposals will be reviewed by the programme team and feedback provided. You may need to make changes to your proposal based on this feedback. The programme team will then allocate an academic supervisor(s) based on the project title/proposal who will support you through the project and write up of the thesis.

Ethics

All research that is undertaken in the NHS needs to have a research governance sponsor i.e. an organisation that takes overall responsibility for the study. The sponsor is responsible for making sure that everything is in place before the study starts and has oversight of the study from the beginning to end. The sponsor also needs to sign off NHS REC and HRA approval/R&D applications. For DClinSci projects the University of Manchester (UoM) considers it is appropriate for the NHS Trust where the trainee works to take on sponsorship. Trainees can refer to the additional guidance on sponsorship and ethical approval. Further information will be available from your Programme Administrator.

In order to discuss sponsorship with the Trust, trainees should speak to their workplace supervisor and contact the R&D office within the Trust. The R&D contacts for all NHS Trusts can be found using the National Directory of NHS Research Offices: http://www.rdforum.nhs.uk/content/contact-details/.

Gaining ethical approval can be a lengthy and time consuming process. Clinical Scientists should check university and workplace procedures for ethical approval in respect of both C1 and C2 research components when planning research. It is your responsibility to ensure that adequate time is allowed for obtaining ethical approval. Further information on UoM ethics approval processes can be found at https://www.manchester.ac.uk/research/environment/governance/ethics/.

Funding

Trainees are asked to cost the project and to confirm if funding is in place. If funding has not been confirmed trainees must identify where the funding for their project will come from.

Intellectual Property

In order for the UoM to fulfil its contractual obligations to the Commissioner of the DClinSci, trainees will be asked to complete an IP assignment form. If trainees have any concerns about this they should contact their Programme Administrator in the first instance.

Training and Support

Trainees will have access to a number of training resources, either through the University or MAHSE. There is a comprehensive set of face-to-face training available through the Doctoral Academy Training Programme. Attendance is optional and you can book directly on to any course of interest.

In addition, the Doctoral Academy Online Training Resource is available for all PGR Trainees in the Faculty through Canvas (online learning environment). The aim of this site is to give you additional resources that further enhance your research skills. Within this space you will find material to support you with:

- Research methods
- Qualitative research methods
- Academic writing
- Presentation skills
- Statistics: key concepts
- SPSS
- Plagiarism prevention
- Intellectual property awareness

Assessment

The C2 assessment comprises:

- A Literature Report (5000-8000 words);
  - If you are continuing your C1 project into C2, this will be a continuation/update of the original Literature Review submitted for C1;
  - If the C2 project is on a new subject, the Literature Report will be assessed as a new piece of work.
- A thesis of 20-40,000 words (see below for further details).

The Aims of the Literature Report are:

- To review the literature providing the background to the research area
- To identify the importance of the research area and what is controversial
- To formulate a hypothesis based on the literature reviewed
- To detail the aims of the project and relate them to the literature review
- To critically evaluate the various experimental approaches that could be used to address the aims of the project and why specific approaches have been chosen for the project
- To outline the relevance of the proposed project to the research area

Trainees have the option of submitting a 1,500 word draft Literature Report relating to their C1 project for formative assessment by their supervisory team. Trainees can discuss this directly with their supervisors and submit by email for review, normally three months ahead of the Literature Report deadline.

Extensions for late submission

Trainees requiring extensions to the Literature Report for C2 should apply for these as for the B units and C1 to the Programme Administrator.

Thesis format

The format for the C2 thesis can either be in a traditional format or in the journal format in line with UoM guidelines (the table below gives a basic outline of the two formats). The word count guidance is 20,000-40,000 words. Further information about presentation and formatting can be found within the Presentation of Theses Policy: http://www.staffnet.manchester.ac.uk/services/rbess/graduate/code/submissionandexamination/

| **Journal Format** | **Traditional Format** |
|---|---|
| Abstract | Abstract |
| Systematic Review / Literature Review | Introduction / Literature Review |
| Empirical Results Paper(s) | Methodology (where appropriate) |
| Critical Appraisal Paper | Results Chapter(s) |
| References | Discussion and Conclusion |
| Appendices | References |
| | Appendices |

You should discuss your choice of format with your supervisors who will provide further guidance about what should be included.

Further information on a suggested journal format

The aim of journal format is to break the thesis into more manageable, 'bite-sized' chunks. The advantage of this format is that it gives you the experience of writing in journal paper format.

- Comprises chapters that have been written in the form of journal papers – targeted to a relevant journal in the field. The format, presentation and word count will follow the guidelines of the target journal.
- These may be papers that have been submitted to a journal, already accepted and published or chapters that are written as journal papers but are not yet submitted or ever intended to be submitted.

*Systematic Review*

This may be an appropriate format for the Literature Review. This may not suit all projects and an alternative approach should be discussed with the supervisory team. The level of systematic review should also be agreed.

*Empirical Results Paper*

- **Introduction**: Present the background and argument for your review or study. Be explicit about aims, research question and/or hypotheses. *Do not copy and paste from your literature review to your empirical study.*
- **Method**: Include type of review/design, inclusion/exclusion criteria for papers or participants, measures, procedures, quality appraisal or statistical analysis plan.
- **Results**: Balance descriptive text and tabulated information with an analysis of data.
- **Discussion**: Present a summary, a discussion of your findings drawing on relevant literature, strengths and limitations of your review/study, clinical and/or theoretical implications, suggestions for future research, conclusions.
- This paper(s) should also be prepared in accordance with the guidelines of a specific journal.
- **Word count**: In line with the target journal.
- **Co-authors**: The contribution of co-authors must be clearly acknowledged.
- **Reference list**: Apply the target journal's referencing style consistently. Include DOI numbers. Use Endnote.
- **Figures and tables**: For your DClinSci thesis place these in the main text for reading ease but if your manuscript is to be submitted to the journal they should be placed after the reference list.
- **Footnotes**: Can be used to refer the reader to additional discussion points in the *critical reflections paper.*

*Critical appraisal paper*

- *It is not expected that this paper would be submitted to a journal.*
- The focus of this section should be a consideration of how your present project contributes to theory and clinical practice in the particular field.

- If you have done a systematic review and study, the critical appraisal paper should put the current review and project in the wider context of research and clinical practice and link the review/project findings to relevant theoretical underpinnings.
- Refer to, and appraise, the research process as a whole, making reference to what was not done and why it was not done, as well as to the work that was actually carried out.
- Strengths and weaknesses of the project (ie the work actually carried out rather than the methodology or line of enquiry as a whole).
- Advantages and disadvantages of the broad methodological approach used in the project and consideration of alternative methodologies that could have been utilised.
- Limitations of the line of enquiry as a whole.
- Implications for theory and for clinical practice.
- Suggestions for further research or implementation.
- **Word count** (no more than 6,000 words).
- **References**

*Presentation*:

- Follow the format and guidelines for the target journal.
- If no word count is given the review should be a maximum of 8,000 words (*excluding references and tables*).

Additional Appendix

Trainees should create an appendix to their thesis which lists all A and B modules undertaken on the programme. This can be provided by MAHSE upon request.

Thesis submission deadline

Trainees should check eProg for confirmation of their thesis submission deadline. The completion of the examination process following submission can take 10-12 weeks depending on the availability of examiners for the oral examination and the recommendations following examination.

Extensions to final submission deadline (C2)

Where a trainee requires an extension to their final thesis submission (C2), they are able to request this formally using the relevant University policy and procedure. This is outlined in the link below under Submission Guidelines. The trainee should be aware that any request for an extension must be accompanied by a supporting statement outlining the reasons why they cannot meet the expected submission date and provide written support from their academic and workplace supervisors. All extension requests will be approved by the relevant Programme Director following the University procedure and should be submitted at least *one month* in advance of the trainee's planned final submission date. **Note:** extensions do not entitle the trainee to further protected time or funding.

Submission and examination guidelines

Guidance on submission procedures can be found at https://www.bmh.manchester.ac.uk/doctoral-academy/your-phd/thesis-submission/. This includes a flowchart mapping out the actions relating to each of the recommendations available to examiners. The full set of recommendations can be viewed in the University's Examination of Doctoral Degrees Policy.

- The first action in relation to submission is completion of the Notice of Submission Form in eProg. This should be completed six weeks prior to planned submission or the final submission deadline.
- Trainees will be required to provide two bound copies of their thesis and undertake an electronic submission.
- Submission and examination processes will be overseen by administrative staff in the Doctoral Academy within the Faculty of Biology, Medicine and Health.

Oral Examination/Viva

An integral part of the DClinSci process is the oral examination (viva). This will take place at Manchester with your internal and external examiner. Training is available to help you prepare for this examination (see Training section above) and you will also receive guidance from your supervisory team on what to expect. You may find it useful to refer to the full University policies on PGR examination.

## C1: Innovation Proposal

For trainees that have interrupted their programme and who are to commence/re-start Section C, the information below gives specific guidance on completing C1.

The HSST innovation proposal requires Clinical Scientists in HSST to conceive an innovation within their healthcare science discipline that has potential to make a positive contribution to service delivery or patient experience or patient outcomes or health economics, or any other aspect of healthcare. The innovation must be carried out at doctoral level and so must be original, must demonstrate that the student is able to think critically about problems to produce innovative solutions and must include the potential to create new knowledge.

***An innovation is defined as:***

*'An idea, service or product, new to the NHS or applied in a way that is new to the NHS, which significantly improves the quality of health and care wherever it is applied.'* (Improvement & Efficiency Directorate, Innovation and Service Improvement (2011, p9). *Innovation, Health and Wealth: Accelerating Adoption and Diffusion in the NHS.* Department of Health).

Proposal

C1 is nominally 70 credits. Trainees submit an initial proposal to the Programme Administrator who circulates this to the programme team who review the proposal to identify and confirm the innovation. If the innovation is confirmed the trainee proceeds with the work. If further work is required to identify the innovation, time is given for this and the trainee works with the workplace supervisor to identify and resubmit.

Supervision:

The trainee is responsible for securing a workplace supervisor and the team will identify an academic supervisor. The Programme Administrator will communicate with all supervisors to ensure they have IT access at UoM and receive the necessary documentation to undertake supervision at the University.

Assessment

The C1 assessment has both a written and an oral element. Both elements must be passed in order to pass C1.

*Written work*

- Summative 4000 word (+/- 10%) Literature Review and an Innovation Proposal (5 x A4 pages – guidance below).
- Feedback and marking will be completed a month after submission.

The aim of the Literature Review is:

- To review the literature providing the background to the research area;
- To identify the importance of the research area and what is controversial;
- To formulate a hypothesis based on the literature reviewed;
- To detail the aims of the project and relate them to the literature review;
- To critically evaluate the various experimental approaches that could be used to address the aims of the project and why specific approaches have been chosen for the project;
- To outline the relevance of the proposed project to the research area.

Innovation proposal

The final form and structure of the innovation proposal is for **you** to decide, below are suggestions for what you might need to include:

- A description of the idea and explanation of why it is an innovation
- Evidence of stakeholder engagement (e.g. focus groups, surveys, interviews, audits) - we recognise that for some disciplines/innovations direct engagement with patients may not be possible/appropriate - but can you provide some evidence/description for how the importance of this innovation to the patient has been or would be considered if implemented?
- A business case – this is the argument for implementation. A business case should articulate a clear path to a return on investment, so it should show that implementing this innovation will be beneficial. It is

therefore *likely* to contain some numbers (detail can be in an appendix), but it does not *have to* if the argument for your innovation can be made in some other way. It does not have to contain every detailed step to implement the innovation, but it should describe how the innovation could be implemented and what (if any) barriers there would be to this.

- An executive/lay summary that sets out in an accessible form what the innovation is, why it is important and what its benefits would be.

This should be a maximum of 5 A4 pages, font size 12 (Times, Times New Roman, Palatino and Garamond) or font size 10 (Calibri, Arial, Verdana, Tahoma and Trebuchet) and 1.5 spacing - excluding figures and references.

Oral assessment

The oral presentation will be assessed by a panel consisting of:

- An academic from the University at which the Trainee is registered (in the Chair)
- An external examiner or clinical assessor appointed by NSHCS
- A lay person appointed by MAHSE

The panel will assess the presentation based on the following criteria:

- Quality and clarity of explanation of the innovation for a lay audience (awareness of the use of jargon, scientific language and acronyms)
- Synthesis of relevant scientific evidence for a lay audience
- Ability to persuade a lay audience of the merits (or otherwise) of the innovation and its potential role in healthcare science services
- Style of presentation (slides, delivery; body language, eye contact, voice, confidence) and appropriateness for a lay audience
- Demonstration of values, attitudes and behaviours expected of a leader in clinical science

The assessment will be given a pass/fail outcome and written feedback will be available afterwards from the panel.
Programme teams and External Examiners will judge the work against the following criteria, in line with expectations for doctoral degrees:

- The creation and interpretation of new knowledge, through original research or other advanced scholarship. This new knowledge must be of a quality to satisfy peer review, extend the forefront of the discipline and merit publication.
- Significant contribution towards the development of novel and innovative research.
- A systematic acquisition and understanding of a substantial body of knowledge that is at the forefront of an academic discipline or area of professional practice.
- The general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline, and to adjust the project design in the light of unforeseen problems.
- A detailed understanding of applicable techniques for research and advanced academic enquiry.

Reassessment:

Trainees will be permitted one opportunity for reassessment of each element of C1. Where possible, reassessment of the written assignments will be undertaken prior to the presentation. If trainees fail the presentation element a further date in early September will be identified for them to undertake a revised presentation to the panel.

Extensions:

Trainees can apply for an extension to the submission deadline for the written component of the unit by contacting the Programme Administrator with the detailed reasons together with support from their workplace supervisor. The Programme Director will review the request and the Administrator will communicate the result to the trainee.

## Roles and responsibilities

Trainee

The DClinSci is a research degree and it is essential that trainees take responsibility for their own personal and professional development throughout the degree. The University's Policy on Supervision for Postgraduate Research Degrees sets out the expected responsibilities of a research trainee.

In particular the trainee is expected to:

- Be proactive in arranging supervisory meetings and informing supervisors when work has been submitted for review. It is suggested that trainees inform their academic supervisor when they will be attending the University for teaching as this may allow face-to-face meetings.
- Maintain regular contact with academic and workplace supervisors. Frequency of meetings will vary according to the type and stage of research but a normal expectation would be for supervisor meetings (face-to-face, Skype, videoconferencing, phone or email) to take place every four weeks and that one face-to-face meeting occurs in each year of the research project.
- Prepare adequately for supervision meetings.
- Maintain up-to-date progression records and meet planning and submission deadlines.
- Make supervisors aware of any specific needs or of any circumstances likely to affect their work, and be proactive in raising issues or difficulties as they arise.
- Accept ultimate responsibility for his/her own research activity.

Academic Supervisor

The academic supervisor will carry out the roles and responsibilities expected of a main supervisor under the Policy on Supervision for Postgraduate Research Degrees.

In particular, for the DClinSci the academic supervisor will be expected to carry out the following tasks:

- Advise on the nature and standard of the research and give help with the research planning process.
- Liaise with the workplace supervisor to ensure the trainee receives support and advice as needed.
- Maintain regular contact with the trainee and workplace supervisor. It is recognised that frequency of contact will vary according to the type and stage of the project. However, a reasonable expectation is that contact (in person, via Skype, by video conferencing or by phone or email) will occur every two-four weeks and that at least one face-to-face meeting takes place in each year of the project.
- Record and monitor progress and attendance of the trainee in the University's progression monitoring system (eProg).
- Responsible for final review and submission of relevant forms on eProg.
- Undertake the assessment of C1 in liaison with the workplace supervisor and provide joint feedback.
- Provide feedback and suggest revisions to the C2 project proposal.
- Give feedback on written work drafts in a timely manner as agreed between the trainee and supervisory team. Note that in relation to the final thesis, the supervisor's opinion is only advisory and the trainee has the right to decide when to submit and whether to follow the advice of the supervisor.
- Ensure the trainee and workplace supervisor are made aware when progress is not satisfactory and given guidance on how to improve progress.
- Support the trainee in relation to research governance processes relevant to their project.
- In consultation with the Programme team, appoint internal and external examiners for the final thesis, after consultation with the trainee and the workplace supervisor. All examiner appointments must be in accordance with the Doctoral Degree examination policy of the relevant University.
- Ensure the trainee is aware of University resources for support and advice.

Workplace Supervisor

The workplace supervisor will be the trainee's main day to day point of contact for C1 and C2. In particular the workplace supervisor will be expected to undertake the following duties:

- Advise on the nature and standard of the research and give help with the research planning process.
- Liaise with the academic supervisor to ensure the trainee receives support and advice as needed – via Skype, email or face-to-face where feasible.

- Ensure appropriate resources are available in the clinical setting to support the research project.
- Ensure the trainee is given sufficient dedicated time away from clinical duties to undertake and complete the research.
- Provide timely feedback on written drafts as appropriate (including final thesis).
- Undertake the assessment of C1 in liaison with the academic supervisor and provide joint feedback.
- Liaise with the trainee and academic supervisor to ensure progress is satisfactory (workplace supervisors will have access to the UoM trainee progression monitoring system).
- Support the trainee in relation to research governance processes relevant to their project.

## eProg

UoM uses an online progression monitoring system called eProg which is accessed using the trainees' UoM login details. Trainees can view their progression table which holds a series of milestones, related forms and deadlines for Section C2.

- In general it is expected that trainees should schedule progress meetings in line with the eProg milestone deadlines.
- Trainees should complete their section of the form in advance of any meeting (including uploading any required documentation) and notify their supervisors that the information is available for review.
- The academic supervisor will take the lead for the completion of the supervisory team comments and submission of the forms.
- Once a form is submitted the milestone will be completed.
- Guidance for each milestone can be found by clicking on the milestone code in eProg.