MRes in Biomedical Research

Respiratory and Cardiovascular Science (RCVS) Stream

National Heart & Lung Institute
Faculty of Medicine

Handbook 2015-16
The Graduate School
Welcome from Professor Sue Gibson
Director of the Graduate School

The Graduate School has several roles but our main functions are to provide a broad, effective and innovative range of professional skills development courses and to facilitate interdisciplinary interactions by providing opportunity for students to meet at academic and social events. Whether you wish to pursue a career in academia, industry or something else, professional skills development training will improve your personal impact and will help you to become a productive and successful researcher.

Professional skills courses for Master’s students are called “Masterclasses” and they cover a range of themes, for example, presentation skills, academic writing and leadership skills (http://www.imperial.ac.uk/graduateschool/currentstudents/professionalskillsmasters/masterclassprogramme).

All Masterclasses are free of charge to Imperial Master’s students and I would encourage you to take as many as you can to supplement your academic training. The Graduate School works closely with the Graduate Students’ Union (GSU) and is keen to respond to student needs so if there is an area of skills training, or an activity that you would like us to offer, but which is not currently provided, please do get in touch (graduate.school@imperial.ac.uk).

The Graduate School also runs a number of exciting social events throughout the year which are an opportunity to broaden your knowledge as well as to meet other students and have fun. Particular highlights include the Ig Nobel Awards Tour Show, the Chemistry Show and the 3 minute thesis competition. You should regularly check the Graduate School’s website and e-Newsletters to keep up to date with all the events and training courses available to you.

Finally, I hope that you enjoy your studies here at Imperial, and I wish you well.

Sue Gibson
Welcome from Dr Janet De Wilde

Head of Postgraduate Professional Development

I would like to welcome you to the graduate school courses for postgraduate professional development. The team of tutors here come from a wide variety of experiences and we understand just how important it is to develop professional skills whilst undertaking postgraduate studies and research. Not only will this development improve success during your time at Imperial College, but it will also prepare you for your future careers. We are continually working to develop and innovate the courses we offer and over this year you will see many new offerings both face to face and online. I encourage you to explore and engage with the diverse range of opportunities on offer from the team at the graduate school and I wish you well in your studies.

Janet De Wilde
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MRes in Biomedical Research

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1. INTRODUCTION

Welcome to the Section of Computational and Systems Medicine, part of the Department of Surgery and Cancer in the Faculty of Medicine. As a postgraduate student enrolled on the postgraduate programme, you are a member of the Department and of the Faculty of Medicine and a member of the Imperial College Graduate School. We hope that you will take advantage of the opportunities available to you here at Imperial College and that you enjoy your period of study.

This handbook contains the essential information concerning the organisation and requirements of your programme, together with useful information about the Departments contributing to the MRes degree course.

Streams
The course is divided into streams, each of which offers a different specialism within biomedical research. The format of the streams and assessment methods are the same for all students, but the core programme and choice of research projects are determined by stream. At certain points throughout the year there will be core sessions which are attended by all streams, and will give students from different streams the opportunity to work together.

For more information on streams, please see:

The information in this handbook relates specifically to the main Respiratory and Cardiovascular Science stream (RCVS) which you will have already selected. http://www1.imperial.ac.uk/surgeryandcancer/teaching/postgraduated/mres biomedical_research/streams/
1.1 Respiratory and Cardiovascular Science

Stream Organiser  Dr Duncan Rogers  duncan.rogers@imperial.ac.uk

NHLI Education Administrator  Ms Danielle Lowther  d.l.lowther@imperial.ac.uk

NHLI Education Manager  Ms Eleanor Tucker  eleanor.tucker@imperial.ac.uk

Welcome to the National Heart & Lung Institute in the Faculty of Medicine. As a postgraduate student enrolled on the postgraduate programme you are a member of the Institute, and of the Faculty of Medicine, and a member of the Graduate School. We hope that you will take advantage of the opportunities available to you here at Imperial College and that you enjoy your period of study.

2. WHAT TO DO AND WHEN

INDUCTION PERIOD

Monday 5th October

- Enrol as a student of Imperial College.
- **10am-12pm:** Attend the MRes in Biomedical Research course and safety induction (and pick up Imperial College ID card) - Sir Alexander Fleming (SAF) Building, room MDL2 Bay D (South Kensington Campus).
- **12pm-1pm:** Stream specific inductions, room MDL2 Bay D (South Kensington Campus).
- **4:15pm:** Attend the Graduate School’s Postgraduate Induction Session – Great Hall, Sherfield Building (level 2).
- **5:05pm:** MRes in BMR Welcome Reception – Sir Alexander Fleming Building, 3rd Floor Atrium.

Thursday 8th October

- **2-4pm:** Attend the MRes Project Fair – SAF MDL2 (Bays A-C). Meet with supervisors of some of the projects being offered for your first rotation.

Thursday 15th October

- Deadline to submit your project 1 preferences.

ASSESSMENT TIMELINE

- Within 3 weeks of starting you need to have commenced your first MRes project.
- By week 19 (February) you should be finishing the practical work and begun writing your first project report and your poster presentation.
- At the end of week 23/24 (March) you will be required to present your research studies as a poster and submit your first research project report.
- By week 26 (April) you will have identified your second MRes project and commenced work.
- During weeks 27 to 32 you will have been working on your grant application.
- At the beginning of week 33 you will hand in your completed grant application.
- By week 41 (July) you should be finishing the practical work for project 2 and begun writing your project report and preparing your oral presentation.
- At the end of week 48/49 you will be required to present your research studies as an oral presentation and submit your second research project report.
- During week 51 you will have the final viva voce (oral) examination.

This is a guide only. Specific assessment deadlines and a detailed timetable will be provided by the course team throughout the course.

3. NATIONAL HEART AND LUNG INSTITUTE

Stream Lead: Dr Duncan Rogers
NHLI Education Administrator: Ms Danielle Lowther
NHLI Education Manager: Ms Eleanor Tucker
Director of Postgraduate Studies: Professor Tony Magee
Deputy Director of Postgraduate Studies: Professor Uta Griesenbach.
PGR Student Committee: http://www1.imperial.ac.uk/nhli/training/postgraduate_research_nhli/studentcommittee/
NHLI PGR Tutors: http://www1.imperial.ac.uk/nhli/training/postgraduate_research_nhli/nhltutors/

You will also come across the following individuals:
Head of Institute: Professor Kim Fox
Institute Manager: Dr Jane Evers
Director of Education: Professor Sue Smith
Institute Lead for Women: Professor Sian Harding
Institute Lead for Outreach: Professor Sara Rankin
Other key individuals are listed here: http://www.imperial.ac.uk/nhli/contacts/

The National Heart & Lung Institute, led by Professor Kim Fox, is an Institute of Imperial College London, Faculty of Medicine, based on sites at Royal Brompton and Harefield, Hammersmith, St Mary's and South Kensington.

The Institute has, as its central interest, all aspects of heart, lung and cardiovascular disease, and includes sections working in respiratory, cardiovascular and molecular medicine.

RESPIRATORY SCIENCE

Respiratory disease is a major cause of morbidity and death in the UK and worldwide. Asthma affects one child in seven in the UK and 300 million individuals worldwide. Chronic obstructive pulmonary disease (COPD) is the fourth most
common cause of death worldwide. Lung cancer is the commonest cancer in the UK. Respiratory infections account for 6% of global disease, even after excluding tuberculosis (TB). Cystic fibrosis is the most common single gene disorder of childhood. Imperial College London enjoys a pre-eminent position nationally and internationally as a place of outstanding research into respiratory disease. This position is based on many factors, including its research track record and its excellent clinical service for patients with severe lung disease.

Respiratory Sciences at NHLI contains world-class groups investigating respiratory infections; tuberculosis; cell and leukocyte biology; airways and allergic diseases; integrative physiology and pharmacology; public health; and genetics and genomics.

Respiratory Sciences has won £107 million in external grants in the last five years, with the most significant components coming from The Wellcome Trust, the MRC and Industry. The Division is responsible for more than 50% of the United Kingdom's publications in leading journals on respiratory research and in a recent independent review was rated the best in the world for respiratory science. The College itself ranks in the top three Universities in the UK, and the top five scientific universities in the world.

Novel research programmes currently being developed include genomic studies of lung cancer; molecular studies of bacteria and the lung; a comprehensive programme to study genetics of respiratory disease other than asthma; an international study of asthma in the developing world; a systematic genomic dissection of airway inflammation; parallel development of new methods for imaging airway inflammation; and a screening programme for respiratory phenotypes in MRC and Wellcome funded mutagenised and knockout mouse resources.

This clinical service that underpins Respiratory Sciences at NHLI has been based historically at the Royal Brompton Hospital (RBHT), but a significant component is also found at St Mary's hospital and other Academic Health Science Centre (AHSC) sites. The RBHT is the leading UK tertiary referral centre for patients with advanced lung diseases, including severe asthma, severe COPO, sarcoidosis and idiopathic pulmonary fibrosis. The surgical service provides the principal UK facility for the resection of lung cancers, and 600 new cases of lung cancer are seen each year in combined clinics with the Royal Marsden Hospital. St Mary's Hospital and the AHSC provide high-level services for patients with moderate asthma and COPD (who are important for clinical studies of both diseases). Both hospitals have strong links with the community, and with patients with early stage and potentially preventable disease.

The recent formal alliance between Imperial College, Imperial College Healthcare NHS Trust and RBHT has created Europe's largest service for respiratory disease, with outstanding opportunities to undertake joint research studies with direct effect on clinical outcomes. The National Institute for Health Research funds translational research at Imperial College London through its general Biomedical Research Centre at the AHSC and a specialised respiratory Biomedical Research Unit at the RBHT.
The MRC and Asthma UK fund a Centre in Allergic Mechanisms of Asthma that encompasses activities at Imperial College and at King's College London. Leadership of the Centre will be through Imperial College from 2011. The Wellcome Trust supports the Centre for Respiratory Infection (CRI), led by Professor Peter Openshaw. The alliance between Imperial and the RBHT is supported by the NIHR Respiratory Biomedical Research Unit, and clinical respiratory research within the ICHT supported by the UK’s largest Comprehensive Biomedical Research Centre.

CARDIOVASCULAR SCIENCE

NHLI hosts the discipline-spanning BHF Centre of Research Excellence, the BHF Centre for Regenerative Medicine and is associated with several world class NHS Trusts at the forefront of the diagnosis, prevention and treatment of heart disease.

In the recent review of UK university research (RAE 2008), Imperial had the highest volume of 4* rated research in the cardiovascular medicine unit of assessment. It has more Leducq Foundation Transatlantic Networks of Excellence in Cardiovascular Research Programs than any other UK institution, including international collaborations on cardiovascular genomics, signal transduction in heart failure, calcium cycling in heart failure and other topics. Finally, it has a 3,600m² cardiovascular research centre under construction for occupancy in 2012.

Cardiovascular Science at NHLI are divided into five sections in which there are several research groups.

Cardiovascular research is also organised into broad strategic themes of Atherosclerosis and Heart Failure, into which each of the sections contribute. The cardiovascular arm of NHLI employs over 28 Professors, and currently there are more than 200 staff and students working principally on the Royal Brompton and Harefield, Hammersmith, South Kensington and St. Mary's campuses of Imperial College London.

Research is supported by funding from the UK Research Councils and charities (including the British Heart Foundation, Heart Research UK, Arthritis Research Campaign, & the Wellcome Trust) as well as by commercial sources.

MOLECULAR MEDICINE

The Section of Molecular Medicine (MM) was created in August 2007, as a result of the merging of the section of Molecular and Cellular Medicine with the section of Biological Nanoscience. The Section is housed in the Sir Alexander Fleming Building on the South Kensington Campus of Imperial College. Most laboratories are found on the 2nd floor. MM regroups scientists with interests in fundamental aspects of cell and molecular biology, enhanced by expertise in physiology, biophysics, spectroscopy, single molecule imaging and state-of-the-art microscopies. The work extends research in the basic sciences at the National Heart and Lung Institute.

Research in the section is principally funded from programme and project grants from Research Councils (MRC, BBSRC) and charities (Wellcome Trust, British Heart Foundation and others).
4. WHY DO THE MRes in BIOMEDICAL RESEARCH?

This course is designed for students who wish to pursue a career in biomedical research. The majority of our MRes students go on to undertake PhD studies at Imperial College and elsewhere.

MRes graduates are highly attractive to both public and private sector employers and there is an increasing requirement for graduates trained in biomedical science. For example, all major pharmaceutical companies employ biomedical science teams in drug discovery and pre-clinical development of pharmaceuticals.

The rapid recent expansion of genomic science and the ever-increasing demand for cell-based analysis and experimentation emphasises the requirement for suitably trained research graduates. At present organisations with requirements for persons trained in the research techniques of physiology, xenobiochemistry and biomolecular sciences, including those engaged in analytical medicinal chemistry, drug metabolism, pharmacokinetics, toxicokinetics, experimental cell biology and physiological science (drug discovery, pre-clinical safety evaluation, biomedical research and scientific Government departments), are obliged to train such individuals themselves.

With academics involved in molecular, cellular and physiological science, the participating research groups are well suited for research training in these areas.

5. WHY DO THE RCVS STREAM?

In seven years' time, the top ten causes of severe ill health will have heart disease at number 1, chronic obstructive pulmonary disease at number 5, and chest infections at number 6. Consequently, study of respiratory and cardiovascular science is essential if we are to improve our future health. The Respiratory and Cardiovascular Science stream will provide a solid grounding in basic physiology and pathophysiology of the heart and lungs, with projects related to advancing our understanding of these processes.

The Global Burden of Disease Study predicts that by 2020 the top ten leading causes of disability-adjusted life years has ischaemic heart disease at number 1, chronic obstructive pulmonary disease (COPD) at number 5, and lower respiratory tract infections at number 6. COPD is predicted to quickly rise 'up the charts' after 2020 because it is unique in being currently untreatable, with four people a minute worldwide dying of this condition! Consequently, study of respiratory and cardiovascular science is essential to improving our future health prospects. To that end, the Respiratory and Cardiovascular Science (RCVS) stream combines lectures and journal clubs covering the physiology and pathophysiology of the heart and lungs to provide a solid grounding on how dysfunction in physiology can lead to pathophysiology and clinical manifestations of severe heart or lung disease. The RCVS stream covers the main areas of respiratory physiology and cellular and molecular biology, and introduces the major disease-causing conditions, giving you a broad base of understanding of the heart and lungs.

Laboratory-based research projects will enhance the overall learning experience and will be directly related to advancing our understanding of heart and lung
function *and/or* dysfunction. In addition, dedicated RCVS sessions on data interpretation are designed to facilitate and complement the project experience. Most of the tutors on the RCVS stream work at the National Heart & Lung Institute, and represent the largest 'critical mass' of research-active, respiratory or cardiovascular science academics in Europe. For example, Professor Peter Barnes (FRS) is the most cited published author for COPD in the world. Consequently, you will be in a premier, cutting-edge environment of respiratory and cardiovascular teaching and research.

**Stream objectives**

After completion of the RCVS stream the student will be able to:

- Describe the basic physiology of cardiac function.
- Describe the pathophysiology of the major cardiovascular diseases (for example, cardiac ischaemia).
- Describe the pathophysiology of the major respiratory diseases, including asthma, COPD and cystic fibrosis.
- Understand the advantages and limitations of animal models of respiratory and cardiovascular disease.
- Understand the rationale behind the design of novel treatments for respiratory and cardiovascular disease.
- Use library and other research sources effectively.
- Design laboratory-based experiments to effectively test a specified hypothesis, incorporating use of appropriate controls.
- Interpret data sets, depict data in an appropriate graphic format and apply appropriate statistical analysis.
- Understand and be able to use bioinformatic approaches.
- Be able to write a grant proposal for a research project.
- Be able to present research project data in various journals, including as a poster, an oral presentation, a PhD-style write-up and a journal-based research paper write-up.
- Be able to read, understand and critically evaluate research papers in peer-review journals.

**6. OUTLINE TIMETABLE**

The timetable for the RCVS stream for the year is an indication of timescales and lectures/workshops you will be attending, but sessions are subject to change.

Please be aware that the most current version of your timetable will always be available on **Blackboard**, so you should refer to this version throughout the duration of the course for accurate information.

The taught elements shared with all the BMR streams will be as on the BMR timetable. Taught elements specific to the RCVS stream will be based primarily at the Royal Brompton campus of the National Heart & Lung Institute – please see map in Appendix V. It is an approximately 10-15 minute walk from South Kensington tube station.
7. MRes BMR: PARTICIPATING DEPARTMENTS

The Department of Surgery and Cancer

Head of Department: Professor Jeremy Nicholson
Director of Postgraduate Studies: Professor Michael Seckl
Divisional Administrator: Mrs. Julia Anderson

The MRes in Biomedical Research is hosted by the Section of Computational and Systems Medicine in the Department of Surgery and Cancer. In addition to Computational and Systems Medicine, several other Sections contribute to the MRes, including Molecular Medicine, Biosurgery and Surgical Technology, Anaesthetics, Pain Medicine and Intensive care, Oncology and Reproductive Biology. Additionally, several sections in the National Heart and Lung Institute (NHLI) and the Department Medicine also contribute. The MRes research projects offered cover a large range of biomedical science and give the opportunity to perform research in world leading laboratories.

Division of Computational and Systems Medicine

Professor of Chemical Biology and Head of Section: Elaine Holmes
Professor of Biological Chemistry: Jeremy Nicholson
Professor of Molecular Toxicology: Nigel Gooderham
Professorial Research Fellow: Naomi Chayen
Professor of Analytical Chemistry: Zoltan Takats
Visiting Professor: John Lindon
Emeritus Professor: Bob Smith
Reader: Tim Ebbels
Senior Lecturer: Jake Bundy
Senior Lecturer: Hector Keun
Senior Lecturer: Marc Dumas
Senior Lecturer: Elizabeth Want
Lecturer: Muireann Coen
Lecturer: Toby Athersuch
Lecturer: Jia Li
Lecturer: Kirill Veselkov
MS Manager: Matthew Lewis
Section Administrator: Katia Nery
PA to Head of Department: Wendy Torto

Computational and Systems Medicine covers a wide range of interdisciplinary research themes in biochemistry, toxicology, disease aetiology, functional genomics, xenobiotic metabolism and environmental issues. In particular, the department has been pivotal in founding the new science of NMR-based Metabonomics/Metabolomics that has evolved out of more than two decades of assiduous research, and now has one of the world’s largest research teams in metabolic science, headed by Professor Jeremy Nicholson FRSC. The group has performed pioneering research in NMR spectroscopy of biofluids and tissues and are world leaders in the application of hyphenated NMR and MS techniques in drug metabolism and drug metabolite reactivity studies.
Funding is derived from numerous sources including Government Research Councils (BBSRC, EPSRC, NERC, MRC, JREI, FSA), charitable bodies (Nuffield Foundation, Kirkwood Trust, Wellcome Trust), overseas agencies (R.I.F.M., N.I.H., European Union) and the pharmaceutical and chemical industries.

Research involves all aspects of molecular toxicology, drug metabolism, cancer biology, clinical biochemistry and environmental chemistry. The section is world leaders in multivariate metabolic profiling (metabolomics) and in the statistical integration (chemometrics) of multi-omics data. The department also has outstanding analytical facilities and major research programs in NMR spectroscopy, mass spectrometry and optical spectroscopy. It is also host to the MRC-NIHR National Phenome Centre at Hammersmith Hospital and the Clinical Phenotyping Centre at St Mary’s Hospital.

Current activities include:
- Statistical spectroscopy and bioinformatics
- Molecular parasitology in man and animal models
- Gut microbial- mammalian metabolic interactions
- Cancer metabonomics
- Chemometric analysis of multi-omics data
- Environmental toxicology and metabolism
- Mechanisms of carcinogenicity
- Mechanisms of DNA damage and mutagenesis
- MicroRNA in toxicity and carcinogenesis
- Clinical biochemical diagnostics
- Mechanisms of drug metabolism and drug reactivity
- Global Systems biology and transgenomic interactions
- Microbial pathogen metabolism
- Bioprocessing

Please see the following website for more information about Computational and Systems Medicine contacts and the research being conducted:

http://www1.imperial.ac.uk/medicine/divisions/surgeryandcancer/divisionofsurgery/biomol_med/

Other participating departments

Other parts of the Faculty of Medicine are also involved in the MRes, particularly the National Heart and Lung Institute and the Department of Medicine. Please see their corresponding websites for details of academics and their research activities.

National Heart and Lung Institute (NHLI)
http://www1.imperial.ac.uk/nhli/

Department of Medicine
http://www1.imperial.ac.uk/departmentofmedicine/

The research opportunities cover a huge range of biomedical research being conducted by scientists who are world leaders in their respective fields.
8. FACILITIES

The majority of the formal teaching will be conducted within the Sir Alexander Fleming Building on the South Kensington campus. The research groups participating in the MRes course are located in laboratories in the Sir Alexander Fleming Building at South Kensington, the Hammersmith Hospital, Royal Brompton Hospital, Chelsea & Westminster Hospital and Charing Cross Hospital Campuses. By choosing a particular project, students will be accommodated and based for the duration of the project within the laboratory of the academic supervisor. Students will gather as a class, on average once a week, to participate in journal clubs, tutorial sessions, technical workshops and class seminars. The majority of these sessions will be based within the Sir Alexander Fleming Building.

The MRes course has its own virtual learning environment “Blackboard Learn” accessible at https://bb.imperial.ac.uk/. This site will act as a focus for information and communication, including a repository of course documents, timetables, lecture notes etc.

Students will have access to the Faculty of Medicine computer cluster (ground floor of the SAF), all of the libraries in the Imperial College Library network, and all the facilities provided by the Imperial College Students Union.

9. COURSE OUTLINE

Aims of the Course
The aim of the MRes is to provide students with a broad research training to prepare them for a career in science research, with emphasis on molecular, cellular and physiological aspects of biomedical science.

Objectives
The course has been developed to enable graduates to pursue a variety of research careers in biomedical sciences. The emphasis is on a research-oriented approach to the subject and therefore comprises both theoretical and practical elements. The course encompasses very recent developments in the field and by way of two mini research projects, students will experience some of the most technologically advanced approaches currently being applied to the area.

Specifically the course will:

a) Provide an excellent background in biomedical science research, and will integrate chemical, biological and physiological aspects in a unified approach.

b) Derive and teach a mechanistic approach to the problems encountered in biomedical science.

c) Emphasise an investigative as well as an empirical approach to the practical problems encountered in experimental and human biomedical science.

d) Impart theoretical and practical knowledge and competence that will prepare the student for employment in a variety of biomedical environments.
Individuals who successfully complete the course will have:

e) Developed an understanding of specific issues that are currently topical in molecular and cellular science.

f) Acquired an understanding of the principles and practice of modern molecular and cell science through both theory and practical exposure.

g) Demonstrated practical dexterity in the commonly employed and more advanced practical techniques of molecular and cell science.

h) Performed novel laboratory based research, accumulated experimental findings and have exercised critical scientific thought in the interpretation of those findings.

i) Successfully written and defended two theses, which appraises the results of laboratory based scientific study conducted by the individual.

j) Acquired the theoretical and practical skills necessary to obtain employment in modern biomedical laboratories.

k) Acquired the communication skills necessary in written, oral and IT to facilitate further study or employment in biomedical science.

l) A range of Professional Skills Development

This will be achieved by providing:

- Lectures, seminars, tutorials and technical workshops that will cover both "core" issues and more specialised topics, which reflect the particular needs and interests of the student. This programme is underpinned by the breadth and depth of scientific expertise in the College in the biomedical science disciplines (biological chemistry, cell biology, structural cell biology, molecular biology, genetics, muscle physiology, immunology, toxicology and pharmacology).

- Hands-on experience of a wide repertoire of scientific methods

- Training in core Professional Skills Development

- Two research projects

**Course Structure and content**
The course comprises an induction period, sessions to introduce research areas and fundamental techniques, two research projects each of five months duration, preparation of a written report and presentation of research seminars, journal discussion seminars, research seminars from invited speakers and training in research methods.

**Induction**
All students will be required to attend the induction, which will include registration; general orientation and guide to the South Kensington Campus; introduction to key members of the faculty; opportunity to meet with the faculty, postdoctoral scientists and postgraduate students; essential briefings on health and safety and computing. At this time, the participating research groups will present an overview of their activities to give students an idea of the breadth of research available.

**Research projects**
Each student will complete two research projects during the year, designed to give practical experience of laboratory research. The experience gained will help in
developing and focussing research skills in modern biomedical research laboratories. Each project will be written up and formally evaluated. Students will be free to choose either unrelated or related projects. The two chosen projects will however, be undertaken in different laboratories to ensure the student experiences different research environments.

Students will be issued with a list of potential research projects and appropriate reading material. Upon commencing the course, students will attend the induction week, which will include presentations from research groups that describe the breadth of research opportunities available, and will be able to discuss projects with potential supervisors. Students will then be asked to rank their choice of projects. Final project 1 allocations will be made in consultation with the Course organisers.

Project 1 will be written-up by the student as a report (max 50 pages, excluding appendices). Project 2 will be written-up in the form of a concise scientific paper (max 30 pages, excluding appendices).

Students will be expected to present and discuss their work at group meetings in the laboratories where they undertake their projects and have regular meetings about progress with their supervisors. Upon completion of project 1, students will present their research as a poster to a group comprising the MRes students, the course organisers and members of the faculty. Upon completion of project 2, students will present their research as an oral presentation to a group comprising the MRes students, the course organisers and members of the faculty.

Grant writing exercise
The grant writing exercise constitutes the third piece of assessed work students will undertake during the MRes course. This exercise is intended to give the student an idea of the grant writing process from the initial idea to the submission of the proposal. The course will cover several aspects including:

- Why do we write grants at all?
- What are the key elements of a well written grant?
- What issues should you consider when applying for a grant?
- Generating hypotheses and aims.
- Putting together a research plan.
- Information required by funding bodies.
- Coordinating the team.
- Costing the proposal.
- The peer review process.

In this exercise, students will work in groups of various sizes. Each proposal will have one Principal Investigator (PI) and one Co-Investigator (Co-I). Each student will develop and submit a grant application as PI with one other student as their Co-I. Grants will usually be based on ideas for further work from Project 1, but will not be restricted to this subject area. Each pair will work together to develop two proposals with the Co-I contributing a specific section to the PI’s proposal. The pair will receive critical feedback from a group of their peers before the grants are finally submitted. After submission, the class will peer-review (anonymously) each others’ proposals before meeting as a scientific panel to select a winning proposal. Group work will be guided by a facilitator. Students are encouraged to research
both the relevant literature and the combined knowledge and experience of the research groups within which they have conducted projects to put together a realistic grant proposal.

By the end of the exercise, students should:

- Have an appreciation of what is involved in writing a grant proposal.
- Be able to list the key elements of a well written grant.
- Be able to generate an original hypothesis / solution from preliminary data / problem.
- Know how to effectively research and summarise the background literature to a given field.
- Be able to break down a hypotheses or objective into several specific aims.
- Have an appreciation of what different funding bodies want from applicants.
- Have an appreciation of the cost of research.
- Appreciate the contributions made by a PI and Co-I to the work of developing a proposal.
- Know how to write a layman's summary of a scientific proposal.
- Have produced an example grant proposal on an original research theme.
- Be able to address the wider implications of a proposal, e.g. identifying beneficiaries, justifying resources etc.
- Appreciate the benefits and drawbacks associated with the peer review process.

Core programme
The MRes group will gather weekly throughout the year as part of a core programme. The programme will cover generic issues such as presentation, writing and computing skills, ethical considerations in research (human and animal), safety issues, information search and retrieval strategies and intellectual property. Students will also be required to attend technical workshops and journal clubs.

Technical Workshops: These will provide practical training in advanced research methods, giving students exposure to techniques which they might otherwise not be exposed to through their projects. Each session will be led by an expert from one of the participating labs and will consist of an explanation of the technique, followed by a practical demonstration, possibly with hands-on experience.

Journal Clubs: In these sessions, students will meet to review and discuss relevant research papers. Each session will be led by a senior researcher who will suggest papers for discussion. Typically, in each session, two students will each present one paper, possibly supported by other students in the group. Students will be encouraged to use computerised audio-visual aids for presentations. When preparing your presentation, think about the following. a) What are the major strengths of the paper? b) What are its major weaknesses – can the conclusions be supported by the data? c) Where could this work go in the future – will it have a great impact on the field? You must not just summarise the results of the paper. Your presentation should be short (up to 10 minutes), emphasise critical evaluation of the scientific data and generate ideas for group discussion. To encourage a full class discussion, those students not presenting the paper should come prepared with 2 points for discussion about the paper (anything you found interesting/good/bad about it).
Research Seminars
Students will be expected to attend departmental seminar programmes. This will include presentations provided by outside speakers.

10. ARRANGEMENTS DURING PROJECTS

It is important to ensure that safety precautions are observed and students must follow all instructions given. All research should be planned to be carried out within normal working hours (7am until 7pm). If deemed appropriate to work out of hours a Risk Assessment Form and Lone Working Authorisation Form must be completed. Supervisors are responsible for ensuring that such arrangements are in place. More information about lone working can be found here: http://www1.imperial.ac.uk/medicine/intranet/healthandsafety/loneworkingoutofhours/

Please note that students must observe confidentiality. They must not give copies of their project reports to anyone, or discuss data with anyone outside of the course, without the prior consent of their supervisor. See also the statement on publications in Appendix 1.

Students should expect that Wednesday mornings will be used for the core programme teaching, as described above, and therefore lab work and external appointments must not be scheduled for Wednesday mornings. Wednesday afternoons are kept free of teaching and lab obligations so that students are able to participate in sports and social clubs if they choose to do so.

During each project you will have the opportunity to complete a mid-project progress report. This form serves as a means for you and the course organisers to obtain feedback from your supervisor on how you are progressing. However, if you have serious concerns about the progress of your project, you should inform the course organisers immediately.

11. ABSENCE

Students wishing to take a period of absence during the MRes should have a valid reason for making the request and any absence must be agreed with the supervisor and the course organiser.

Timetabled sessions are compulsory. If you are unwell on the day of the session you must contact your supervisor and the course administrator or course organiser, by phone, email or in person.

12. ASSESSMENTS

Students will be assessed by written report after the completion of each of the two projects (in March and September), a viva voce examination after completion of both projects (September) and by performance in a grant-writing exercise. The Project 1 written report (in the style of a dissertation) and the Project 2 report (in the form of a scientific paper) will be independently assessed by a member of the participating departments teaching staff acting as assessor, and a member of the board of examiners. The marks for each project will be equally weighted, each
contributing 50% of the final aggregate mark. Within each project the assessed components will be weighted as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor (lab work)</td>
<td>2</td>
</tr>
<tr>
<td>Internal examiner 1 (report)</td>
<td>2</td>
</tr>
<tr>
<td>Internal examiner 2 (report)</td>
<td>2</td>
</tr>
<tr>
<td>Internal examiner 3 (oral)</td>
<td>1</td>
</tr>
<tr>
<td>Internal examiner 4 (oral)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

The grant writing exercise (part of the core programme) will be independently assessed by two examiners. The grant writing exercise is a pass or fail element (pass mark 50%) but does not contribute to the final aggregate mark.

However, **in order to graduate from the course**, students must pass the grant writing exercise. The submitted grants will be available to external examiners and may be used in their decisions regarding borderline candidates.

**Award Classifications**

In order to pass the course overall, all students must pass the grant writing exercise and meet the minimum requirement for Transferrable Skills courses (see pp27-30 for information on Transferrable Skills courses). To gain the following award classifications, students must meet the criteria detailed below:

- **PASS**: Assessed work must be passed with at least 50% marks.

- **PASS WITH MERIT**: An overall aggregate mark of at least 60% must be attained, all assessed work must be passed with at least 50% marks and one project must be passed with at least 60% marks.

- **PASS WITH DISTINCTION**: An overall aggregate mark of at least 70% must be attained, both projects must be passed with at least 60% marks and one project must be passed with at least 70% marks.

**Extenuating Circumstances**

Occasionally events beyond your control may occur which may have a negative impact on your performance in the assessments. For example this may include illness or family bereavement. Such events are called extenuating circumstances. If you think this may be relevant to you, you must inform the course organisers as soon as possible.

A written description of the circumstances, including supporting documents (e.g. doctor’s note) must be submitted at least 5 days in advance of any assessment deadline using the form available on the Registry website:


Your work will be assessed in the normal way (examiners will not have knowledge of your situation). Extenuating circumstances are taken into account at the meeting of the Board of Examiners at the end of the year.
Final Viva Voce
At the end of the year the student will be examined viva voce by internal and the external examiners. The examiners will be given the student’s project reports after they have been assessed internally. The external examiners will moderate the marks awarded to the projects, examine the students understanding of their research and of the taught part of the course and recommend the level of award.

The Board of Examiners will comprise Internal Examiners and the External Examiners.

External Examiners
The principle function of the external examiners is to ensure that standards achieved by students on this MRes course are satisfactory, and that recommended awards are consistent with similar courses elsewhere. Accordingly the external examiners will be chosen in part for their experience in conducting and examining similar courses.

13. THE RESEARCH PROJECTS

The research projects form the core activity of the MRes programme. They provide an education in research and scientific ethos and method and give training in many research techniques. Integral to the projects are the poster presentation, the oral presentation and the preparation of the research report (dissertation). These are discussed below. The allocation of projects is discussed later.

The project is in all cases supervised by a member of academic staff from one of the participating Departments of Imperial College. In many cases the day-to-day supervision of the student may be delegated to a senior laboratory worker. In some cases the projects are formed from collaborations between two laboratories.

Poster presentation
As part of the assessment of research project 1, students are required to present their research findings as a poster. This is a frequently used form of communicating research findings at scientific conferences and meetings. As part of the core programme, students will be given instruction on how to put together a poster. The posters will be displayed and attended by the students who will be expected to discuss and defend their research. A group of staff will assess the research activity through examination of the poster and discussion with the student.

The title of the poster needs to reflect the nature of your research project. Discuss with your project supervisor what the poster title should be and pointers as to what should be included.

Your poster should be prepared using a word processor and appropriate graphics programmes. Remember that it is important not only for the content of the science to be right, but also its presentation.

- If you produce a scrappy looking poster no one will want to read it.
- Think about how much information you should put in the poster. Pages of detailed 9 font text are not easily read.
- Diagrams help people to understand what you want to say.
Oral Presentation
As part of the assessment of research project 2, students must give a short oral presentation. The supervisor will help the student prepare and rehearse the talk. All the students are expected to attend the talks to support colleagues. The talks are also attended by at least two members of academic staff, who assess the presentations.

Research Project Report
All students have to write up the details of their research. For project 1, the write-up will be in the form of a dissertation and for project 2 it will be in the form of a scientific paper. These will be the major pieces of assessed work for each of the two projects. Detailed guidelines for preparation of the dissertation and scientific paper are given below.

The supervisor will help the student to prepare the write-up. This involves constructive criticism of both content and presentation. However, it must be remembered that it is the student’s responsibility to write the reports, not the supervisor’s!

The student must meet the deadline for report submission as this is absolute. There is always a tendency to underestimate the time needed to do this. It is very important to follow the guidelines for submission of the report.

14. WRITING YOUR RESEARCH REPORTS

For Project 1
WARNING: This always takes much longer than you think it will, so you should start well in advance of the submission date. You will need to prepare 4 hard copies: 2 for the examiners, 1 for your supervisor and 1 for yourself.

Structure
WARNING: This always takes much longer than you think it will, so you should start well in advance of the submission date. You will need to prepare 4 hard copies: 2 for the examiners, 1 for your supervisor and 1 for yourself.

Structure
The thesis is limited to 50 pages and must conform to the font, margin and line spacing detailed below. Examiners will be instructed to ignore all material beyond the page limit. The limit does not include appendices or supplementary information, but DOES include references and figure/table captions.

We require electronic submission of your report on the virtual learning environment (Blackboard) by the deadline specified there. Unless there are exceptional circumstances, late submissions will receive a mark of zero.

It should be divided into the following sections:
- Title Page
• Statement of Originality
• Abstract (approximately ½ to 1 page)
• Acknowledgements
• Table of Contents
• Abbreviations
• Introduction (approximately 5 to 10 pages)
• Materials and Methods (approximately 5-10 pages)
• Results (approximately 10-15 pages)
• Discussion (approximately 5-10 pages)
• References (approximately 5 pages)
• Appendices (if required)

The thesis should be typed, using Arial or Verdana font (minimum size of 11 point), double spaced and with at least 2cm margins on all sides. Each major section (Introduction, Materials and Methods etc.) should start at the top of a new page. Paragraphs should be made clearly visible either by indenting the first line (by 5 spaces) or by leaving an additional blank line between paragraphs.

The thesis should be written in your own words (see notes on plagiarism Appendix I).

ALL SUBMITTED WORK WILL BE CHECKED CAREFULLY FOR PLAGIARISM.

Title Page
The title page should present
• the title of the project
• your name
• your supervisors’ name(s) (clearly indicated as supervisor)
• an indication that the thesis is written for the MRes in Biomedical Research
• the date of submission

Statement of Originality
It is very common that an MRes project will continue work started by another researcher in the same lab. Occasionally, it may also be appropriate to include data obtained by other researchers, for example from the published literature or by other members of your research group. You must therefore include a statement of originality on a separate page at the beginning of the thesis as follows.

‘I certify that this thesis, and the research to which it refers, are the product of my own work, conducted during the current year of the MRes in Biomedical Research at Imperial College London. Any ideas or quotations from the work of other people, published or otherwise, or from my own previous work are fully acknowledged in accordance with the standard referencing practices of the discipline.’

In addition to this wording, the statement should clearly and specifically acknowledge any work of other researchers which you have used, and clearly state which parts of the research were performed by you. For example, ‘blood samples for this work were kindly donated by Dr. X from XX lab’ or ‘The cell lines used in this work were the product of a previous PhD kindly provided by XXX.’ The work of others should only be included when it significantly
aids the understanding of your data and the source of the data must additionally be **clearly acknowledged in both the main text of the thesis and the figure/table legends**. Further example statements can be found on Blackboard.

Note that this statement and acknowledgement applies both to the work of others **and any work performed by you in previous projects** at Imperial College or elsewhere.

**Abstract**
This should give a brief summary of the purpose of your study, the techniques that your chose to use, the major findings and a discussion of the technical aspects and academic significance of these results.

**Acknowledgements (optional)**
You can also use this section to acknowledge anyone who supported you in the project, this includes any organisation that may be funding your studies.

**Abbreviations.**
You should list on a separate page all the abbreviations that you have used in your thesis. Many of these are standard, e.g.

- **PBS** - phosphate buffered saline
- **Ig** - immunoglobulin
- **FITC** - fluorescein isothiocyanate

Try not to invent too many abbreviations of your own, as it can make it hard work for your examiner to read. In addition, the first time that you use an abbreviation in the main text, you must define it, e.g.

Antibodies were diluted in phosphate buffered saline (PBS)
The next time you can simply use the abbreviation, e.g.

Sections were rinsed three times in PBS

You must be consistent. Once you have defined an abbreviation, always use the same abbreviation and do not revert to the original words.

**Introduction**
This should provide the background literature to the area in which you did your research, together with a discussion of the specific work, published and unpublished, that led to your own research project. A final paragraph should introduce the specific topic and aims of your research work.

**Materials and Methods**
This section should describe the reagents, cells etc. that you used and the methods that you carried out. This should give sufficient detail such that someone could read the protocol and then repeat the experiment themselves. Commercial reagents should have their source (i.e. the company and country) in brackets after they are mentioned for the first time, but not on subsequent occasions, e.g.

Monoclonal antibody LP34 (Dakopatts, Denmark) was used to detect epithelium. Epithelial cells in the thymic medulla labelled more strongly with LP34 than those in the cortex.

**Results**
Obviously the exact way in which you present your data will depend upon the nature of your data. However, the following general rules apply to all studies. Your data should be concisely described in the text. Details should be presented as Figures (e.g. graphs, photomicrographs) and Tables. Figures and Tables should each be numbered (e.g. Fig. 1, Fig. 2 etc., Table 1, Table 2 etc.) and should be referred to in the appropriate position in the text, e.g. ‘The activity of the protein was induced approximately ten fold (Table 1) and levels of the protein itself were elevated as shown by Western blot (Fig. 1).’

For numerical data, you should apply statistical analysis where appropriate and report errors, statistical tests used and p-values in figure captions and/or main text.

Discussion
There are two aspects to a discussion, technical and academic. For the technical part you should discuss the advantages and disadvantages of the techniques that you used. You should also discuss the problems (there are always some!) that you encountered, why you think these arose and how you tried to solve them.

For the academic part you should summarise the major findings of your research data, and then discuss your interpretation of these data and what you feel is their significance in the context of work that has been published in the literature.

Finally, you should discuss future work that could be done to answer the unanswered questions that remain at the end of your work, and the direction in which you think this research might lead.

References
When you write your report, you will be using information that already exists, due to the work of other scientists. When you make a major statement that is based on someone’s work you should quote the relevant publication; this may be an original article, a review or possibly a book. In the text, a reference should be quoted in brackets at the end of the relevant sentence, using an accepted style. One commonly used style which we recommend you use is to give the author(s) and date (‘author-date’ style); where there are 3 or more authors, only the first author followed by "et al." is given, e.g.:

1 author paper:
   B cells develop within the mammalian bone marrow (Smith, 1992).
2 author paper:
   T cells develop within the thymus (Smith and Jones, 1992).
3 author paper:
   T and B cells develop from a common haemopoietic stem cell (Smith et al., 1992).

[NB  et al. is the abbreviated form of et alia meaning, in Latin, ‘and others’.  Et al.  (And all other Latin phrases such as in vivo, in vitro) should be written in italics, or underlined. In this ‘author-date’ style, where 2 or more papers are quoted together at the end of a sentence they should be in chronological order, separated by a semi colon, e.g. (Smith, 1990; Smith and Jones, 1991; Smith, et al., 1992). Where the same author has published 2 papers in the same year they should be called a. and b., according to the alphabetical order of the second author, e.g.:]
Jones, et al., 1988a (for Jones, Bishop and Smith, 1988)
Jones, et al., 1988b (for Jones, Dodd and Pilkington, 1988)

For author-date style, all the references quoted should then be collected together at the end of the thesis arranged in alphabetical order. Here, all the details (including all authors, full title, volume number and first and last page numbers) should be given as follows:

Each journal has a standard abbreviation, e.g.:
- J. Immunol. - Journal of Immunology
- Cancer Res. - Cancer Research
- J. Exp. Med. - Journal of Experimental Medicine
- Nature - Nature
- Proc. Natl. Acad. Sci. - Proceedings of the National Academy of Science
- Science - Science
- Cell - Cell
- EMBO J. - EMBO Journal
- Brit. J. Cancer - British Journal of Cancer

When you want to refer to a chapter in a book:

There are other styles you can use, for example you can use a number in parentheses or superscript to refer to a reference. At the end of the thesis, numbered references are listed in the order which they are first used in the text.

Do not quote a reference that you have not read; reading the abstract is not sufficient. The Library at the IC has access to a very large number of journals, both in hard copy and electronically. However, if there is an important article in a journal not taken by the library, talk to your supervisor about it as it may be possible to obtain an inter-library loan or photocopy. Do not put a reference in the Reference section of your thesis unless you have quoted it in the text.

We strongly advise that you use reference management software to build up a database of papers you read during your project. This will make it much easier to produce the bibliography when you come to write up the work. Popular software such as Endnote and Reference Manager can be obtained from the Imperial College Software Shop. See the library page on reference management for more information:
http://www3.imperial.ac.uk/library/subjectsandsupport/referencemanagement

Binding
Please soft bind your report. This can be either heat sealed, spiral bound or in a presentation folder. Expensive professional binding is not required.
For Project 2

The research report for project 2 should be written up in the form of a scientific research paper, such as would be submitted to a high quality peer-reviewed scientific journal.

The thesis is limited to 30 pages subject to font, margin & line spacing requirements detailed below. Examiners will be instructed to ignore all material beyond the page limit. The limit does not include appendices and supplementary information, but DOES include references and figure/table captions.

We require electronic submission of your report on the virtual learning environment (Blackboard) by the deadline specified there. Unless there are exceptional circumstances, late submissions will receive a mark of zero.

Additionally you should soft bind 4 hard copies of your thesis. Two copies should be submitted to the course administrator, one copy to your supervisor and one copy for you.

As a guideline, we ask that you follow the style of a scholarly journal such as the Biochemical Journal. While following this basic style your report should also incorporate the following:

1. The introduction and discussion should be accessible to a more general audience than for a journal in the specific field of the project. A good style to follow is that exemplified by journals such as Nature or Science.
2. You should also include your ideas for further work at the end of the report.
3. Figures and tables should be included in the main body of the report, not at the end.
4. Please include captions at the bottom of each figure or table.
5. Supplementary information may be submitted and should be included at the back of the report. Any electronic files (e.g. movies etc.) should be submitted on a CD / DVD attached at the back of the report.

Figure legends must always include details of the variability of the data (e.g. standard deviation), the number of biological repeats undertaken and details of the statistical analysis used.

The report should be typed, using Arial or Verdana font (minimum size of 11 point), double spaced and with at least 2cm margins on all sides. Each major section (Introduction, Materials and Methods etc.) should start at the top of a new page. Paragraphs should be made clearly visible either by indenting the first line (by 5 spaces) or by leaving an additional blank line between paragraphs.

Statement of Originality

It is very common that your second project will continue work started by another researcher in the same lab. Occasionally, it may also be appropriate to include data obtained by other researchers, for example from the published literature or by other members of your research group. As for project 1, you must therefore include a statement of originality on a separate page at the beginning of the thesis as follows.
'I certify that this thesis, and the research to which it refers, are the product of my own work, conducted during the current year of the MRes in Biomedical Research at Imperial College London. Any ideas or quotations from the work of other people, published or otherwise, or from my own previous work are fully acknowledged in accordance with the standard referencing practices of the discipline.'

In addition to this wording, the statement should clearly and specifically acknowledge any work of other researchers which you have used, and clearly state which parts of the research were performed by you. The work of others should only be included when it significantly aids the understanding of your data and the source of the data must additionally be clearly acknowledged in both the main text of the thesis and the figure/table legends. Further example statements can be found on Blackboard.

Note that this statement and acknowledgement applies both to the work of others and any work performed by you in previous projects at Imperial College or elsewhere.

The thesis should be written in your own words (see notes on plagiarism APPENDIX I).

ALL SUBMITTED WORK WILL BE CHECKED CAREFULLY FOR PLAGIARISM.

15. TIMETABLE FOR WRITING THE RESEARCH REPORTS

This is very important. Six months is quite a short time in which to carry out a research project and write up your work in a well presented thesis. The following timetable has been designed to help you plan your time efficiently and effectively.

October - Start project 1. Read background literature.

November - Jan - Project (organise data as you get it), and reading.

Early Feb - Project, and write first draft.

Late Feb (at the latest) - Submit first draft to your supervisor.

Early March - Commence corrections.

March deadline for handing in completed project 1 report. You need to submit an electronic copy via Blackboard by 9am on the day of the deadline. Additionally, print out and bind 4 hard copies of your thesis (2 for submission to the course administrator, one for your supervisor and one for you).

Early/mid April - Start project 2. Read background literature.

May – July - Project (organise data as you get it), and reading.

Late July - Project, and write first draft.
Mid August (at the latest) - Submit first draft to your supervisor.

Late August - Deadline for handing in completed project 2 report. You need to submit an electronic copy via Blackboard stated deadline. Additionally, print out and bind 4 hard copies of your thesis (2 for submission to the course administrator, one for your supervisor and one for you).

16. USEFUL COLLEGE WEBSITES

- **MRes Biomedical Research Blackboard site**
  
  [https://bb.imperial.ac.uk/](https://bb.imperial.ac.uk/)

  This is the dedicated site for the MRes course. Students should check regularly for information updates.

- **Computational and Systems Medicine**
  
  [http://www1.imperial.ac.uk/computationalsystemsmedicine/](http://www1.imperial.ac.uk/computationalsystemsmedicine/)

  This is the Section of Computational and Systems Medicine website. It has detailed information on the members of the Division and their research.

- **Research students and supervisors: their responsibilities and duties**
  
  [http://www3.imperial.ac.uk/registry/researchdegrees](http://www3.imperial.ac.uk/registry/researchdegrees)

  This website covers the College regulations with regards to PhD students. It also has useful information on writing up.

- **Graduate Schools**
  
  [http://www3.imperial.ac.uk/graduateschools](http://www3.imperial.ac.uk/graduateschools)

  This website lists all activities organised by the Graduate School for postgraduate students, including special lectures and the student symposium. The Graduate Schools Transferrable Skills courses are listed on this site and can be booked online.

- **Imperial College Registry**
  
  [https://www.imperial.ac.uk/registry/forms/index.htm](https://www.imperial.ac.uk/registry/forms/index.htm)

  This is Registry’s website. It is a very useful site for finding out more about specific College regulations with regard to postgraduate studies and has links to all the forms that you need to complete at different stages of your PhD. It also has practical details e.g. how to get your council tax exemption, where to get your thesis bound etc.
• Student Learning Support

http://www.imperial.ac.uk/learningsupport

Site set up by the Centre for Educational Development that has links to other College sites that cover all different aspects of student life. Covers areas such as maths support, developing writing skills, health and welfare, dyslexia, careers, volunteering etc.

17. IMPERIAL COLLEGE LONDON STUDENT SUPPORT FACILITIES

Who's Here to Help You?

Within the Department of Computational and Systems Medicine

Course Director
Professor Nigel J Gooderham
n.gooderham@imperial.ac.uk

Course Organiser
Dr Tim Ebbels
t.ebbels@imperial.ac.uk

Core Programme Organiser
Dr Liz Want
e.want@imperial.ac.uk

(BMR Stream) & Course Tutor
Miss Jennifer Simeon
j.simeon@imperial.ac.uk

Within the National Heart & Lung Institute

Stream Organiser
Dr Duncan Rogers
duncan.rogers@imperial.ac.uk

NHLI Education Administrator
Ms Danielle Lowther
d.l.lowther@imperial.ac.uk

NHLI Education Manager
Ms Eleanor Tucker
eleanor.tucker@imperial.ac.uk

Outside Departments
Student welfare is of particular concern to members of academic staff in departments and divisions, and to warden teams in Halls. As a student on the MRes in Biomedical Research your first point of contact to raise queries or issues should always be your course team (as above). However, all students also have confidential access - independent of department or division - to the College Tutors regarding academic issues, and all aspects of pastoral care and discipline within the College.

Dr Linda White (020 7594 8527) l.white@imperial.ac.uk
Dr Mick Jones (020 8383 1643) m.d.jones@imperial.ac.uk
Dr Simon Archer (020 75945368) s.archer@imperial.ac.uk
Mr Colin Kerr (020 7594 6044)mailto:c.j.kerr@imperial.ac.uk
College-wide Facilities

Library
Accessing scholarly information will be an essential part of completing your course at Imperial College. To this end, Imperial College Library, which consists of Central Library in South Kensington and five distinct medical campus libraries across London, delivers a wide range of services to support students’ research needs.

The Library has access to a vast range of online scholarly journals, reference materials, print and electronic books (including recommended textbooks), and subject-specific databases such as PubMed and the Cochrane Library. Library staff are an excellent source of guidance on academic best practice and, furthermore, can offer training and advice to help augment your search techniques, keep abreast of the latest research activities in your field, and manage references using up-to-date software packages.

For more information on the Library, please consult the main library website at www.imperial.ac.uk/library, or the Medicine @ Imperial College London Library blog at http://imperialmed.wordpress.com/.

Student Counselling Service
Reception, extension 49637. (counselling@imperial.ac.uk)
Counselling is available to any student registered with the College, about any personal issue. To make an appointment, contact by telephone or the email address above.

Health Centre
Reception, extension 49375/6. External phone number 020 7584 6301. (healthcentre@imperial.ac.uk)
Available practitioners: doctors, nurses, psychotherapists, counsellors, psychiatrist, sports medicine specialist, physiotherapy, acupuncture, Alexander Technique, homeopathy, osteopathy, reflexology, aromatherapy.
For further information see also www.imperial.ac.uk/healthcentre

Disabilities Officer
Room 445 Sherfield Building
Reception, extension 49755 (disabilities@imperial.ac.uk)
The Disabilities Officer provides advice and information on issues relating to disability.

Student Support Office
Student Finance (Registry) Sherfield Building Level 3
Reception, extension 48130 (student.funding@imperial.ac.uk)
Student funding advice and administration (inc. hardship funds and hardship loans).
Union Support
See the Imperial College Union web pages:
http://www.imperialcollegeunion.org/

Union Adviser
Imperial College Union Office, Beit Quad, extension 48067
Nigel Cooke (advice@imperial.ac.uk)
Welfare issues including housing, immigration, money & debt advice, health/sexual health awareness, drugs & alcohol. The advisor also works with the Deputy President (Education & Welfare) on matters relating to representation, campaigns and academic issues.

The Chaplaincy Centre
The Chaplaincy Centre can be found in the East Basement, Beit Quad (South Kensington) and on extension 49600. It is a resource for people of faith on campus and home to a group of chaplains.
http://www3.imperial.ac.uk/chaplaincy

The Imperial College Student Handbook contains details of societies for specific faith groups.

Islamic Prayer Room
The Islamic Prayer Room can be found in the Basement, 9 Prince’s Gardens (South Kensington) and is available to staff and students with an Imperial College ID card. For more details please contact the Imperial College Islamic Society on islam@imperial.ac.uk.

Hall Wardens
Wardens are responsible for the wellbeing of all residents of Imperial halls and are on call every evening and all weekend to sensitively handle any emergencies. Wardens act as your first port of call for help and support for any matters relating to life in halls, and because they live in halls, you can always knock on their door. If there's an emergency they will be on hand to help at any hour.

http://www3.imperial.ac.uk/students/welfareandadvice/wardens

London Nightline, 020 7631 0101
Helpline offering confidential listening support and information to students in London. It is run by students in the London area, every night of term, 6pm - 8am. It is also now possible to contact Nightline via e-mail: listening@london-nightline.org.uk

18. GRADUATE SCHOOL
The Professional Skills Development Programme ‘Masterclasses’ for MRes and Students 2014-15
The Graduate School offers a comprehensive training programme for MRes and PhD research students to enhance your research, professional and personal development skills. The courses are designed to complement existing departmental training programmes and can show you how to communicate your work to a variety of audiences and consider the wider application of your work. The courses are also a social opportunity to interact with students from other departments and divisions.

Courses vary in length and format, from one-hour lectures to three-day interactive workshops. There are also online courses for you to complete or use as an information resource in your own time.

The Programme is regularly reviewed and updated and new courses added throughout the year. Courses are free but there is a cancellation policy of three working days' notice.

The courses are delivered by a range of highly skilled and experienced professional trainers, Imperial academics, and our own dedicated Graduate Schools teaching team.

http://www3.imperial.ac.uk/graduateschools

What the programme covers

The Professional Skills Development Programme can help you in your research and beyond. Courses cover areas such as:

- Communication and presentation skills
- Creativity and ideas generation
- Writing for publication
- Becoming an effective researcher

Furthermore courses are divided into skill categories, grouping related courses together and making it easier for you to find courses relevant to your skill-base. Categories cover areas such as:

- Personal & Research Effectiveness – including motivation and stress management
- Information Skills – including EndNote and Reference Manager
- Business Skills & Commercial Awareness – including marketing and entrepreneurship
- Career Management – including interview practice and effective CVs

Please be aware that not all courses will be available to MRes students. For more information on the courses offered to MRes students, please refer to the Graduate Schools website (above).
The Attendance Requirement

The programme is an integral part of your degree and you should use it to support your development. It exists in order to ensure all students receive some generic Professional Skills Development training whilst at Imperial, enhancing your employability.

All MRes BMR students who registered from 1st October 2015 are required to attend:

- 3 masterclasses courses

The attendance requirement is deliberately kept low to give you the freedom to take responsibility for your own training and development. Once you have completed your requirement you are welcome, and encouraged, to attend any further workshops that interest you.

Where to Find Information on the Courses

As well as the Graduate School website provided above, all courses are also detailed on the Graduate School Blackboard site. This is a password protected intranet site containing course outlines, materials and a timetable of workshops. The Calendar in the site gives the timetable of Graduate School workshops. Dates of workshops are also given on each of the course description pages.

To login to Blackboard go to: https://bb.imperial.ac.uk/ and enter your College username and password. If you cannot see the Graduate School site, please email your username to graduate.schools@imperial.ac.uk and it will be added to your account.

How to Book

Students can download a booking form from the How to Book page on the Blackboard site. Bookings cannot be processed without your CID number, start date and supervisor’s name.

We strongly recommend planning ahead and booking all your courses well in advance. Courses fill up throughout the year, and if you do not meet your Professional Skills Development requirement, you are unable to graduate from the course.

Places are allocated on a first come first served basis and the course venue will be sent in a confirmation email.

Cancellation Charges

Please note that you are required to give 3 working days’ notice to cancel or a £30 fee is charged to your Division. Cancellation charges in respect of the residential course and for courses longer than one day in duration are higher.
Other Resources

Online Skills Courses

Once you have been given access to the Graduate Schools Blackboard site, you can access a number of online skills courses, including the following:

- Ethics 1: Good Research Practice
- Ethics 2: Working with Human subjects
- Getting Published in the Arts
- Getting Published in the Sciences
- Intellectual Property in the Research Context
- Project Management in the Research Context
- Career Planning in the Arts, Humanities and Social Sciences
- Career Planning in the Sciences
- Selecting a Conference, Presenting and Networking
- IT & Statistics Basic

Needs Analysis Questionnaire

You can tailor the Graduate School’s programme to your specific needs using our Needs Analysis Questionnaire. It will highlight the key Professional Skills Development and help you focus your personal development planning. The Needs Analysis Questionnaire can be found on the Graduate Schools’ website:

http://www3.imperial.ac.uk/graduateschools

Help sheets

The Graduate School has a number of help sheets which provide guidance and tips. These include advice on literature reviews, poster presentations and career planning.

http://www3.imperial.ac.uk/graduateschool/currentstudents/helpsheets

Skills Surgery

If you have a question about the Professional Skills Development Programme, or need some guidance on which Graduate School courses to choose, then book an appointment at one of our Skills Surgeries where a member of the team will be able to help you. To book a place, email graduate.schools@imperial.ac.uk.

Information for PhD students and researchers

The library website provides many useful resources and information for researchers, including advice on finding research literature, using other libraries,
copyright issues, the publication process, plagiarism awareness, reference management and links to other useful resources.

http://www3.imperial.ac.uk/library/researchers

Graduate School Events

The Graduate School gives you a chance to meet other postgraduates and encourage interdisciplinary collaboration. Most events have a reception afterwards where you can meet with the speaker and each other.

Many of our events are run jointly with courses from Engineering and Physical Sciences, bringing you into contact with graduates often from very different backgrounds to your own. See the website for our events programme http://www3.imperial.ac.uk/graduateschools.

Below are some upcoming events that may interest you:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday 5 October 2015</td>
<td>Provost’s Welcome: 4:15pm</td>
<td>Great Hall, Sherfield Building</td>
</tr>
</tbody>
</table>

As for the rest of the year be aware of some of these exciting events:

Graduate Schools’ University Challenge  
Ig Nobel Awards Tour Show  
Annual Postgraduate Event  
Graduate Schools Research Symposium

The above list is not exhaustive and more events will be added throughout the year – look out for information on the Graduate Schools’ Website regarding dates, locations and times of these events.

Graduate School Summer Research Symposium

The Graduate School’s annual summer research symposium is one of the highlights of the Graduate School calendar and will take place in July 2015. Research student’s present posters at this event, and there are prizes for the best poster presentations. Further details of the event and the poster selection process will be available on the Graduate School’s website in the spring term.

Contact Us

Room 560, Level 5, Sherfield Building, South Kensington  
The office is open 9.30am-5pm, Monday to Friday

Email: graduate.schools@imperial.ac.uk
19. STUDENT SURVEYS

Your feedback is important to your department, the College and Imperial College Union.

Whilst, there are a variety of means to give your feedback on your Imperial experience, the following College-wide surveys give you regular opportunities to make your voice heard:

- **PG SOLE lecturer/module**
- **Student Experience Survey (SES)**
- **Postgraduate Taught Student Experience (PTES)**

**The PG SOLE lecturer/module survey** runs at the end of the Autumn and Spring Terms. This survey is your chance to tell us about the modules you have attended and the lecturers who taught them. Run at the same time as the Autumn Term PG SOLE is the Union’s

**Student Experience Survey (SES).** This survey will cover your induction, welfare, pastoral and support services experience. During December you will receive an email in your Imperial College account with a link to the survey.

**The Postgraduate Taught Experience Survey (PTES)** is the only national survey of Master’s level (MSc, MRes, MBA and MPH) students we do and so the only way for us to compare how we are doing against the national average and to make changes that will improve our Master’s students’ experience in future. PTES covers topics such as motivations for taking the programme, depth of learning, organisation, dissertation and professional development. During the spring term you will receive an email in your Imperial College account with a link to the survey.

All these surveys are anonymous and the more students that take part the more representative the results so please take a few minutes to give your views

If you would like to know more about any of these surveys or see the results from previous surveys, please visit: [http://www3.imperial.ac.uk/registry/proceduresandregulations/surveys](http://www3.imperial.ac.uk/registry/proceduresandregulations/surveys)

For further information on surveys please contact the Registry’s Surveys Team on surveys.registrysupport@imperial.ac.uk
APPENDIX I: Policy on Scientific Misconduct

The College considers any allegation of scientific misconduct to be a matter of great concern and will investigate any such allegation fully. Given its international reputation and status, the College has a responsibility to the scientific community and to the public at large and therefore, where appropriate, will make public the outcome of any such investigation.

Definitions

The College has adopted the Royal College of Physicians’ definitions of scientific misconduct as including piracy, plagiarism and fraud. The following definitions give indicative descriptions of the types of activity covered by this regulation. These descriptions are neither exclusive nor exhaustive:

(a) Piracy is the deliberate exploitation of ideas and concepts from others without acknowledgement.

(b) Plagiarism is the copying of ideas, data or text (or a combination of these) without permission or acknowledgement.

(c) Fraud involves deception—usually, but not exclusively, the invention of data. This could also include the omission from analysis and publication of inconvenient components of a data set.

5. Other types of scientific misconduct may be separately defined, but the College views them as combinations or sub-types of those defined above. In addition to scientific misconduct, these procedures will also apply to cases of scientific negligence.

Procedures for the Investigation of Allegations of Scientific Misconduct

See: http://www3.imperial.ac.uk/secretariat/collegegovernance/provisions/ordinances/d17

STATEMENT ON PLAGIARISM

You are reminded that all work submitted as part of the requirements for any examination (including coursework) of Imperial College and the University of London must be expressed in your own words and incorporate your own ideas and judgements.

Plagiarism, that is, the presentation of another person’s thoughts or words as though they were your own, must be avoided, with particular care in coursework, essays and reports written in your own time. Note that you are encouraged to read and criticise the work of others as much as possible. You are expected to incorporate this in your thinking and in your coursework and assessments. But you must acknowledge and label your sources.

Direct quotations from the published or unpublished work of others, from the internet, or from any other source must always be clearly identified as such. A full reference to their source must be provided in the proper form and quotation marks used. Remember that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as a single unacknowledged long quotation from a single source. Equally, if you summarise another person’s ideas or judgements, figures, diagrams or software, you must refer to that person in your text, and include the work referred to in your
bibliography. Departments are able to give advice about the appropriate use and correct acknowledgement of other sources in your own work. The direct and unacknowledged repetition of your own work which has already been submitted for assessment can constitute self-plagiarism. Where group work is submitted, this should be presented in a way approved by your department. You should therefore consult your tutor or course director if you are in any doubt about what is permissible. You should be aware that you have a collective responsibility for the integrity of group work submitted for assessment.

The use of the work of another student, past or present, constitutes plagiarism. Where work is used without the consent of that student, this will normally be regarded as a major offence of plagiarism.

Failure to observe these rules may result in an allegation of cheating. Cases of suspected plagiarism will be dealt with under the College’s Examination Offences Policy and may result in a penalty being taken against any student found guilty of plagiarism.

http://www3.imperial.ac.uk/registry/exams/examoffences

GUIDANCE FOR STUDENTS ON PUBLICATION OF RESEARCH

Students will often publish their research in academic journals. The following statement is designed to inform students about their rights and responsibilities in publishing:

**Intellectual Property**

It is unusual for students to own the IP developed during their research, as it will invariably fall under one of the categories set out below in the College’s IP statement:

*Where students generate IP in the course of their study or research they will own that IP in their own right unless one of the following applies:*

(i) they hold a sponsored studentship under which the sponsor has a claim on the arising IP; or
(ii) they participate in a research programme wherein the arising IP is committed to the sponsor of the research; or
(iii) they generate IP which builds upon existing IP generated by, or is jointly invented with College Employees or Associates; or
(iv) they are, or have the status of, College Employee (in which case they are treated by College and the law as employees).

In situations (iii) and (iv) above, students will be required to assign that IP to College, and in respect of revenue generated by that IP, the student will be treated on the same basis as College Employees under the Reward to Inventors Scheme.
Publication of Research

To avoid confusion, students should consult their supervisor before submitting any manuscript for publication, **even if they believe themselves to own the IP**; premature or misleading publication of data could hinder patent applications or damage the College’s reputation.

Authorship Rules

Irrespective of IP ownership, all journal articles must adhere to The Vancouver Protocol, the internationally-recognised standard for determining authorship. It states that in order to be credited as an author, each author must have been involved in all three of the:

1. Conception and design, or analysis and interpretation of data
2. Drafting the article or revising it critically for important intellectual content
3. Final approval of the version to be published.

Where the IP is owned by the College or supervisor, the supervisor must be given the opportunity to contribute under points 2 and 3. Sole authorship by a student will be highly unusual.

Where College rules are broken, the incident will be investigated under research misconduct rules.

By undertaking a research project within the College, you are agreeing to adhere to its policies. Where you are in any doubt, speak to your supervisor first. If you cannot resolve matters in this way, please contact your Director of Postgraduate Studies via the Department’s Post Graduate Administrator.
APPENDIX II: Assessment & Evaluation

Students will be assessed by written report and viva voce after the completion of each of the two projects (in March and September), and by performance in a grant-writing exercise. The Project 1 written report (max 50 pages) and the Project 2 report (max 30 pages, in the form of a scientific paper) will be independently assessed by two members of participating departments’ teaching staff acting as assessors, and a member of the board of examiners. The marks for each project will be equally weighted, each contributing 50% of the final aggregate mark. Within each project the assessed components will be weighted as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor (lab work)</td>
<td>2</td>
</tr>
<tr>
<td>Internal examiner 1 (report)</td>
<td>2</td>
</tr>
<tr>
<td>Internal examiner 2 (report)</td>
<td>2</td>
</tr>
<tr>
<td>Internal examiner 3 (oral)</td>
<td>1</td>
</tr>
<tr>
<td>Internal examiner 4 (oral)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

The grant writing exercise (part of the core programme) will be independently assessed by two examiners. The grant writing exercise is a pass or fail element (pass mark 50%) but does not contribute to the final aggregate mark. However, in order to graduate, students must pass the grant writing exercise.

**Award Classifications**

In order to pass the course overall, all students must pass the grant writing exercise and meet the minimum requirement for Transferrable Skills courses. To gain the following award classifications, students must meet the criteria detailed below:

- **PASS**: Assessed work must be passed with at least 50% marks.
- **PASS WITH MERIT**: An overall aggregate mark of at least 60% must be attained, all assessed work must be passed with at least 50% marks and one project must be passed with at least 60% marks.
- **PASS WITH DISTINCTION**: An overall aggregate mark of at least 70% must be attained, both projects must be passed with at least 60% marks and one project must be passed with at least 70% marks.

**Extenuating Circumstances**

Occasionally events beyond your control may occur which may have a negative impact on your performance in the assessments. For example this may include illness or family bereavement. Such events are called extenuating circumstances. If you think this may be relevant to you, you must inform the course organisers as soon as possible.

A written description of the circumstances, including supporting documents (e.g. doctor’s note) must be submitted at least 5 days in advance of any assessment deadline using the form available on the Registry website:

http://www.imperial.ac.uk/workspace/registry/public/Procedures%20and%20Regulations/Policies%20and%20Procedures/Major.docx
Your work will be assessed in the normal way (examiners will not have knowledge of your situation). Extenuating circumstances are taken into account at the meeting of the Board of Examiners at the end of the year.

**Final Viva Voce**
At the end of the year the student will be examined *viva voce* by internal and the external examiners. The examiners will be given the student’s project reports after they have been assessed internally. The external examiners will moderate the marks awarded to the projects, examine the students understanding of their research and of the taught part of the course and determine whether students should be awarded a distinction.

The board of Examiners will comprise a panel of Internal Examiners and External Examiners.
### Criteria for Assessment of Written work

These criteria are used during the MRes in Biomedical Research course to assess written work. Due allowance is made for what is reasonably achievable in the time available.

<table>
<thead>
<tr>
<th>Literal Grade</th>
<th>Percentage Grade</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>100</td>
<td>Exceptional. Exceptionally well-presented exposition of the subject showing: (i) complete command of the relevant concepts and facts, (ii) a high critical or analytical ability**, (iii) originality, and (iv) evidence of substantial outside reading.</td>
</tr>
<tr>
<td>A+</td>
<td>80</td>
<td>Excellent. A very well presented exposition of the subject, showing all of the above features, but not fully achieving one or two of them.</td>
</tr>
<tr>
<td>A</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>A-/B+</td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

**Literal Grade (70-100)**

<table>
<thead>
<tr>
<th>Merit Grade</th>
<th>Percentage Grade</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>B+</td>
<td>68</td>
<td>Good. Work: (i) shows a clear grasp of the relevant concepts and facts, (ii) gives an accurate account of the relevant material, and (iii) shows evidence of some outside reading, or of critical or analytical ** ability.</td>
</tr>
<tr>
<td>B</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>B-/C+</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

**Merit (60-69)**

<table>
<thead>
<tr>
<th>Pass Grade</th>
<th>Percentage Grade</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>C+</td>
<td>58</td>
<td>Adequate. Work: (i) shows a grasp of the basic concepts and facts, and either (ii) gives an accurate account of at least half of the relevant material, or (iii) goes beyond that but includes significant errors</td>
</tr>
<tr>
<td>C</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>C-/F+</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

**Pass (50-59)**

<table>
<thead>
<tr>
<th>Fail Grade</th>
<th>Percentage Grade</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>F+</td>
<td>45</td>
<td>Fail. Work: (i) shows only a weak grasp of the fundamental concepts and facts, and is marred by errors or omissions.</td>
</tr>
<tr>
<td>F</td>
<td>40</td>
<td>Work: (i) shows a confused understanding of the topic, and (ii) contains major errors and omissions.</td>
</tr>
<tr>
<td>F-</td>
<td>30</td>
<td>Work is too inaccurate, too irrelevant, or too brief to indicate more than a vague understanding of the topic.</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>Presents very little that is correct and relevant</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Contains nothing correct that is relevant to topic. Mark to be given where the work is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.</td>
</tr>
</tbody>
</table>

**Analytical** = assessing a hypothesis or statement by breaking it down into its elements and examining their inter-relationships and contribution to the whole; cf. **Critical** = judging a hypothesis or conclusion by examining the validity of the evidence adduced for it.
# Criteria for Assessment of Laboratory Work

These criteria are used during the MRes in Biomedical Research course to assess the laboratory project. Account is taken of the nature of the work, and the instructions provided. Due allowance is made for what is reasonably achievable under laboratory conditions and in the time available.

<table>
<thead>
<tr>
<th>Literal Grade</th>
<th>Percentage Grade</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>100</td>
<td><strong>Exceptional.</strong> Quality and quantity of data comparable to that in research articles published in the best journals. All procedures thoroughly understood and applied correctly, including (where applicable) statistical analysis. Shows an understanding of the limits of the experimental procedures, and possible alternative strategies and techniques. Shows an appreciation of possible sources of errors and significance of results. Shows evidence of outside reading, independent thought and originality.</td>
</tr>
<tr>
<td>A+</td>
<td>80</td>
<td><strong>Excellent.</strong> Experimental procedures understood and applied correctly, with most experiments successfully completed. Shows the above features, but not fully achieving one of them. No significant deficiencies.</td>
</tr>
<tr>
<td>A</td>
<td>76</td>
<td><strong>Excellent.</strong> Experimental procedures understood and applied correctly, with most experiments successfully completed. Shows the above features, but not fully achieving one of them. No significant deficiencies.</td>
</tr>
<tr>
<td>A-</td>
<td>72</td>
<td><strong>Excellent.</strong> Experimental procedures understood and applied correctly, with most experiments successfully completed. Shows the above features, but not fully achieving one of them. No significant deficiencies.</td>
</tr>
<tr>
<td>A-/B+</td>
<td>70</td>
<td><strong>Excellent.</strong> Experimental procedures understood and applied correctly, with most experiments successfully completed. Shows the above features, but not fully achieving one of them. No significant deficiencies.</td>
</tr>
<tr>
<td>B+</td>
<td>68</td>
<td><strong>Good.</strong> Most experimental procedures understood and applied correctly with some experiments successfully completed. Only minor problems.</td>
</tr>
<tr>
<td>B</td>
<td>65</td>
<td><strong>Good.</strong> Most experimental procedures understood and applied correctly with some experiments successfully completed. Only minor problems.</td>
</tr>
<tr>
<td>B-</td>
<td>62</td>
<td><strong>Good.</strong> Most experimental procedures understood and applied correctly with some experiments successfully completed. Only minor problems.</td>
</tr>
<tr>
<td>B-/C+</td>
<td>60</td>
<td><strong>Good.</strong> Most experimental procedures understood and applied correctly with some experiments successfully completed. Only minor problems.</td>
</tr>
<tr>
<td>C+</td>
<td>58</td>
<td><strong>Adequate.</strong> Some experimental procedures understood and applied correctly with a few experiments successfully completed.</td>
</tr>
<tr>
<td>C</td>
<td>55</td>
<td><strong>Adequate.</strong> Some experimental procedures understood and applied correctly with a few experiments successfully completed.</td>
</tr>
<tr>
<td>C-</td>
<td>52</td>
<td><strong>Adequate.</strong> Some experimental procedures understood and applied correctly with a few experiments successfully completed.</td>
</tr>
<tr>
<td>C-/F+</td>
<td>50</td>
<td><strong>Adequate.</strong> Some experimental procedures understood and applied correctly with a few experiments successfully completed.</td>
</tr>
<tr>
<td>F+</td>
<td>45</td>
<td><strong>Fail.</strong> Weak understanding of experimental procedures. Some significant experimental errors. Very few experiments successfully completed.</td>
</tr>
<tr>
<td>F</td>
<td>40</td>
<td><strong>Fail.</strong> Weak understanding of experimental procedures. Some significant experimental errors. Very few experiments successfully completed.</td>
</tr>
<tr>
<td>F-</td>
<td>30</td>
<td><strong>Fail.</strong> Weak understanding of experimental procedures. Some significant experimental errors. Very few experiments successfully completed.</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td><strong>Fail.</strong> Weak understanding of experimental procedures. Some significant experimental errors. Very few experiments successfully completed.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td><strong>Fail.</strong> Weak understanding of experimental procedures. Some significant experimental errors. Very few experiments successfully completed.</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td><strong>Fail.</strong> Weak understanding of experimental procedures. Some significant experimental errors. Very few experiments successfully completed.</td>
</tr>
</tbody>
</table>

For Fail (0-49) grades, the criteria are as follows:

- **F+ (45)**: One or two experiments attempted, but without any understanding or success. Experiment not attempted. Mark given where the work presented is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.
- **F (40)**: One or two experiments attempted, but without any understanding or success. Experiment not attempted. Mark given where the work presented is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.
- **F- (30)**: One or two experiments attempted, but without any understanding or success. Experiment not attempted. Mark given where the work presented is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.
- **F (15)**: One or two experiments attempted, but without any understanding or success. Experiment not attempted. Mark given where the work presented is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.
- **F (5)**: One or two experiments attempted, but without any understanding or success. Experiment not attempted. Mark given where the work presented is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.
- **F (0)**: One or two experiments attempted, but without any understanding or success. Experiment not attempted. Mark given where the work presented is discovered not to be that of the candidate (plagiarised). Further disciplinary action is usually taken in cases of plagiarism.
Imperial College London
MRes in Biomedical Research
Criteria for Assessment of work presented orally

These criteria are used during the MRes in Biomedical Research course to assess project oral presentations. Due allowance is made for what is reasonably achievable under the conditions of the presentation (resources available, time allowed, etc).

<table>
<thead>
<tr>
<th>Literal Grade</th>
<th>Percentage Grade</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>85-100</td>
<td>Exceptional. Presentation demonstrates: (i) complete understanding of the material to be presented showing high critical or analytical ability** as relevant, (ii) clear and logical organisation of the material, (iii) excellent use of appropriate resources and teaching aids, (iv) preparatory work including substantial background reading, and (v) ability to instruct with clarity of exposition and productive engagement with the audience resulting in a very positive learning experience.</td>
</tr>
<tr>
<td>A+</td>
<td>80</td>
<td>Excellent. A very well presented exposition of the subject, showing all the above features, but not fully achieving one of them.</td>
</tr>
<tr>
<td>A</td>
<td>76</td>
<td>Good. Presentation has the following features: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>A-</td>
<td>72</td>
<td>Adequate. Presentation: (i) shows a grasp of the material, (ii) gives an accurate account of most of the relevant material, (iii) shows evidence of some background reading, and (iv) successfully delivers most of the material to the audience in a way that they can understand it, but does not go beyond that.</td>
</tr>
<tr>
<td>A-/B+</td>
<td>70</td>
<td>Adequate. Presentation: (i) shows a grasp of the material, (ii) gives an accurate account of most of the relevant material, (iii) shows evidence of some background reading, and (iv) successfully delivers most of the material to the audience in a way that they can understand it, but does not go beyond that.</td>
</tr>
<tr>
<td>B+</td>
<td>68</td>
<td>Good. Presentation has the following features: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>B</td>
<td>65</td>
<td>Adequate. Presentation: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>B-</td>
<td>62</td>
<td>Adequate. Presentation: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>B-/A+</td>
<td>60</td>
<td>Adequate. Presentation: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>C+</td>
<td>58</td>
<td>Adequate. Presentation: (i) shows a grasp of the material, (ii) gives an accurate account of most of the relevant material, (iii) shows evidence of some background reading, and (iv) successfully delivers most of the material to the audience in a way that they can understand it, but does not go beyond that.</td>
</tr>
<tr>
<td>C</td>
<td>55</td>
<td>Adequate. Presentation: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>C-</td>
<td>52</td>
<td>Adequate. Presentation: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>C-/F+</td>
<td>50</td>
<td>Adequate. Presentation: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>F+</td>
<td>45</td>
<td>Fail. Presentation: (i) shows only a basic grasp of the material (ii) shows evidence of little background reading or preparation, (iii) delivers most of the material accurately but makes errors or omissions resulting in a poor learning experience for the audience.</td>
</tr>
<tr>
<td>F</td>
<td>40</td>
<td>Fail. Presentation: (i) shows only a basic grasp of the material (ii) shows evidence of little background reading or preparation, (iii) delivers most of the material accurately but makes errors or omissions resulting in a poor learning experience for the audience.</td>
</tr>
<tr>
<td>F-</td>
<td>30</td>
<td>Fail. Presentation: (i) is too inaccurate, too irrelevant, or too brief to indicate more than a vague understanding of the material, and (ii) only succeeds in misinforming and confusing the audience.</td>
</tr>
<tr>
<td>F</td>
<td>15</td>
<td>Fail. Presentation includes very little that is correct and relevant.</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>Failure to make a presentation at all.</td>
</tr>
</tbody>
</table>

**Analytical = assessing a hypothesis or statement by breaking it down into its elements and examining their inter-relationships and contribution to the whole; cf. Critical = judging a hypothesis or conclusion by examining the validity of the evidence adduced for it.
Imperial College London
MRes in Biomedical Research
Criteria for Assessment of work presented as a poster

These criteria are used during the MRes in Biomedical Research course to assess project poster presentations. Due allowance is made for what is reasonably achievable under the conditions of the presentation (resources available, time allowed, etc).

<table>
<thead>
<tr>
<th>Literal Grade</th>
<th>Percentage Grade</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>85-100</td>
<td>Exceptional. Presentation demonstrates: (i) complete understanding of the material to be presented showing high critical or analytical ability**, (ii) clear and logical organisation of the material, (iii) excellent use of appropriate resources and teaching aids, (iv) preparatory work including substantial background reading, and (v) ability to instruct with clarity of exposition and productive engagement with the audience resulting in a very positive learning experience.</td>
</tr>
<tr>
<td>A+</td>
<td>80</td>
<td>Excellent. A very well presented exposition of the subject, showing all the above features, but not fully achieving one of them.</td>
</tr>
<tr>
<td>A</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>A-/B+</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>68</td>
<td>Good. Presentation has the following features: (i) shows a clear understanding of the material with an accurate account that demonstrates good critical or analytical ability**, (ii) good use of resources, (iii) evidence of appropriate background reading, and (iv) succeeds in delivering all the relevant material clearly to the audience so that they appreciate its significance.</td>
</tr>
<tr>
<td>B</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>B-/C+</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td>58</td>
<td>Adequate. Presentation: (i) shows a grasp of the material, (ii) gives an accurate account of most of the relevant material, (iii) shows evidence of some background reading, and (iv) successfully delivers most of the material to the audience in a way that they can understand it, but does not go beyond that.</td>
</tr>
<tr>
<td>C</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>C-/B+</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>F+</td>
<td>45</td>
<td>Fail. Presentation: (i) shows only a basic grasp of the material (ii) shows evidence of little background reading or preparation, (iii) delivers most of the material accurately but makes errors or omissions resulting in a poor learning experience for the audience.</td>
</tr>
<tr>
<td>F</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>F-</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Failure to make a presentation at all.</td>
</tr>
</tbody>
</table>

** Analytical = assessing a hypothesis or statement by breaking it down into its elements and examining their inter-relationships and contribution to the whole; cf. Critical = judging a hypothesis or conclusion by examining the validity of the evidence adduced for it.
MRes in Biomedical Research
Grant Writing Exercise
Criteria for Assessment

The following table gives criteria for the assessment of grant proposals submitted in the grant writing exercise. The criteria refer to the proportion of ‘key points’ which are required to attain each mark. The key points for each section and their weighting in the overall mark are given in the next table. The final mark is obtained by multiplying the mark for each section by its weighting and summing the results.

<table>
<thead>
<tr>
<th>Literal grade</th>
<th>Percentage grade</th>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>85 - 100</td>
<td><em>Exceptional.</em> An outstanding piece of work addressing all of the required key points, presented with clarity, detail and conciseness.</td>
</tr>
<tr>
<td>A+</td>
<td>70 - 84</td>
<td><em>Excellent.</em> A first rate piece of work, accurately addressing at least 70% of the required key points. No factual errors.</td>
</tr>
<tr>
<td>A</td>
<td>60 - 69</td>
<td><em>Good.</em> Work includes at least 60% of the key points accurately presented. No factual errors.</td>
</tr>
<tr>
<td>B+</td>
<td>50 - 59</td>
<td><em>Adequate.</em> Work presents at least 50% of the key points, showing a grasp of the basic requirements. May include minor factual errors.</td>
</tr>
<tr>
<td>B</td>
<td>30 - 49</td>
<td><em>Fail.</em> Work presents less than 50% of the required points, possibly in a confused manner, indicating a lack of understanding.</td>
</tr>
<tr>
<td>B-</td>
<td>0 – 29</td>
<td><em>Ungraded.</em> Work addresses very few of the key points, is largely inaccurate and / or irrelevant. 0% to be given in cases of plagiarism.</td>
</tr>
</tbody>
</table>

Key points for each section and weightings

<table>
<thead>
<tr>
<th>Section</th>
<th>Key Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>• Appropriate, clear, concise</td>
</tr>
<tr>
<td>Layman’s Summary</td>
<td>• Motivation &amp; methodology described.</td>
</tr>
<tr>
<td></td>
<td>• Proposed outcomes / benefits to general public described.</td>
</tr>
<tr>
<td></td>
<td>• Language appropriate to lay audience.</td>
</tr>
<tr>
<td>Background</td>
<td>• Subject of study introduced in a way which is clear to scientists outside the area.</td>
</tr>
<tr>
<td></td>
<td>• Subject of study set in scientific context.</td>
</tr>
<tr>
<td></td>
<td>• Knowledge of previous work demonstrated.</td>
</tr>
<tr>
<td></td>
<td>• Relevant literature cited.</td>
</tr>
<tr>
<td></td>
<td>• Motivation for the proposed work made clear.</td>
</tr>
<tr>
<td></td>
<td>• Overall hypothesis / problem clearly stated.</td>
</tr>
<tr>
<td>Scientific methodology</td>
<td>• Specific aim(s) clearly identified.</td>
</tr>
<tr>
<td></td>
<td>• Proposed methodology is sufficient to address aims.</td>
</tr>
<tr>
<td>Category</td>
<td>Criteria</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Choice of methodology</td>
<td>Justified (e.g. with reference to alternative methods).</td>
</tr>
<tr>
<td></td>
<td>Sufficient detail given.</td>
</tr>
<tr>
<td></td>
<td>Methodology is clear &amp; logical.</td>
</tr>
<tr>
<td>Timeliness and novelty</td>
<td>Knowledge of which aspects of the proposal are novel is demonstrated.</td>
</tr>
<tr>
<td></td>
<td>Knowledge of which aspects of the proposal are timely is demonstrated.</td>
</tr>
<tr>
<td></td>
<td>At least some aspects of the proposal are novel.</td>
</tr>
<tr>
<td>Programme of work</td>
<td>Overall amount of work is realistic for the total time proposed.</td>
</tr>
<tr>
<td></td>
<td>Milestones appropriate and in logical order.</td>
</tr>
<tr>
<td></td>
<td>Time required for each milestone is realistic.</td>
</tr>
<tr>
<td>Costing</td>
<td>Includes all major staff, equipment and consumables costs, plus an overhead.</td>
</tr>
<tr>
<td></td>
<td>Cost estimates are realistic</td>
</tr>
<tr>
<td>Justification of resources</td>
<td>All significant resources are justified.</td>
</tr>
<tr>
<td></td>
<td>Each requested resource is convincingly justified.</td>
</tr>
<tr>
<td>Impact</td>
<td>Academic impact identified.</td>
</tr>
<tr>
<td></td>
<td>Societal / economic impact identified/addressed.</td>
</tr>
<tr>
<td></td>
<td>Clear proposals for impact activities identified.</td>
</tr>
<tr>
<td>Presentation and format</td>
<td>Grant conforms to required format (6 pages max, 10pt font, min 1.5cm margins).</td>
</tr>
<tr>
<td></td>
<td>Grant is well presented.</td>
</tr>
</tbody>
</table>
APPENDIX III: Students with disabilities, specific learning difficulties, long-term health issues

At Imperial College we recognise that studying at university can be a challenge, especially if you have a disability. We are keen that you have every opportunity to fulfil your potential and graduate with the degree you deserve. It is therefore important that you let us know about any disability, specific learning difficulty or health problem as soon as possible so that we can give expert advice and support to enable you to do this.

Some people never think of themselves as having a disability, but students who have experienced any of the issues listed below have found that a little extra help and support has made all the difference to their study experience.

- Specific learning difficulties (such as dyslexia, dyspraxia, AD[H]D)
- Autistic spectrum disorder (such as Asperger’s)
- Deafness or hearing difficulties
- Long term mental health difficulties (such as chronic anxiety, bipolar disorder, depression)
- Medical conditions (such as epilepsy, arthritis, diabetes, Crohn’s disease)
- Physical disabilities or mobility impairments
- Visual difficulties

Where to find help:

1. **Your Disability Liaison Officer** (DLO) Dr Michael McGarvey
   (m.mcgarvey@imperial.ac.uk, Variety Wing Floor D, Room 3, St Mary’s Campus, Norfolk Place, London W2 1PG, Tel: 020 7594 9035) is your first point of contact within your department and is there to help you with arranging any support within the department that you need. The DLO is also the person who will apply for Special Examination arrangements on your behalf. You need to contact him without delay if you think that you may need extra time or other adjustments for your examinations.
   [http://www3.imperial.ac.uk/registry/exams/specialexamarrangements](http://www3.imperial.ac.uk/registry/exams/specialexamarrangements)

2. **Disability Advisory Service**: [http://www3.imperial.ac.uk/disabilityadvisoryservice](http://www3.imperial.ac.uk/disabilityadvisoryservice)
   The Disability Advisory Service works with individual students no matter what their disability to ensure that they have the support they need. We can also help if you think that you may have an unrecognised study problem such as dyslexia. Our service is both confidential (information about you is only passed on to other people in the university with your agreement) and individual in that any support is tailored to what you need.

   Some of the sorts of things we can help with are:

   - Being an advocate on your behalf with others in the College such as your departmental liaison officer senior tutor or exams officer, the accommodation office or the estates department
   - Checking that your evidence of disability is appropriate and up-to-date
   - Arranging a diagnostic assessment for specific learning difficulties
- Help with applying to the College for the cost of an assessment
- Help with your application for the Disabled Students Allowance (DSA) see below
- Helping students not eligible for the Disabled Students Allowance in obtaining support from other sources
- Help with arranging extra Library support
- Supporting applications for continuing accommodation for your second or later years

3. **Disabled Students Allowance:**
   [http://www3.imperial.ac.uk/disabilityadvisoryservice/supportforstudents/dassupport](http://www3.imperial.ac.uk/disabilityadvisoryservice/supportforstudents/dassupport)

   Students who are home for fees and who have a disability can apply for a grant called the Disabled Students Allowance which can pay any extra costs that are a direct result of disability. This fund is not means-tested and is also a grant not a loan so any home student with a disability can apply and will not be expected to pay it back. Remember students with unseen disabilities such as mental health difficulties, dyslexic type difficulties or long term health problems are also eligible for this fund.
APPENDIX IV: Map of South Kensington campus

(For an interactive map of the South Kensington campus, please visit: http://www3.imperial.ac.uk/interactivemap)
Building key

1. Beit Quadrangle
   Beit Hall, Chaplaincy, Imperial College Union

2. Imperial College Union

3. Ethos Sports Centre
   Sport Imperial

4. Prince's Gardens, North Side
   No.8: Early Years Education Centre
   No.10-12: Garden Hall
   No.15: Institute for Global Health Innovation

5. Weeks Hall

6. Blackett Laboratory
   Physics, Cell and Molecular Biology

7. Roderic Hill Building
   Aeronautics, Biology, Composites Centre, Chemical Engineering
   and Chemical Technology, Centre for Process Systems
   Engineering

8. Bone Building
   Aeronautics, Chemical Engineering and Chemical Technology

9. Royal School of Mines
   Earth Science and Engineering, Materials

10. Aston Webb
    Earth Science and Engineering, Materials, Institute for Security Science
    and Technology, Institute of Shock Physics

11. Bessemer Building
    Bioengineering, Imperial Incubator, Institute of Biomedical
    Engineering, Institute for Systems and Synthetic Biology

12. Goldsmiths Building
    Bioengineering, Earth Science and Engineering, Materials

13. Huxley Building
    Computing, Mathematics, Physics

14. ACE Extension
    Aeronautics, Chemical Engineering and Chemical Technology

15. William Penney Laboratory
    London e-Science Centre

16. Electrical Engineering Building
    Electrical and Electronic Engineering, Energy Futures Lab

17. Business School
    Centre for Quantitative Finance, Innovation Studies Centre,
    Entrepreneurship Centre, Centre for Health Management

18. Prince's Gate
    Institute for Mathematical Sciences

19. Eastside
    Gabor Hall, Linstead Hall, Wilkinson Hall, Eastside bar and
    restaurant, Essentials convenience store

20. Sherfield Building
    Level 1: Bank (NatWest), Catering, International Office,
    Queen's Tower Rooms, Security Reception
    Level 2: Bank (Santander), Great Hall, Junior Common Room,
    Newsagent, Optician, QT snack bar, Senior Common
    Room, Union Shop
    Level 3: Academic Visitors' Accommodation, Conference
    Office, Finance, Graduate Schools, HR Pensions, Human
    Resources, Humanities, Outreach, Registry,
    Learning and Development Centre, Sport Imperial
    management, Student Accommodation Centre, Student Hub

21. Grantham Institute for Climate Change

22. Faculty Building
    Academic Health Science Centre (AHSC), Central Secretariat,
    Communications and Development, Corporate Partnerships,
    Faculties of Engineering, Medicine and Natural Sciences
    administration, Finance, Human Resources, Rector's Office,
    Research Services, Strategy and Planning

23. 58 Prince's Gate
    Ballroom, Billiard Room, Boardroom, College Room, Garden
    Room, Oak Room, Imperial Consultants, UK Energy Research
    Centre

24. 170 Queen's Gate
    Council Room, Dining Room and Solar

25. Imperial College and Science Museum Libraries
    Central Library, Humanities, Centre for the History of Science,
    Technology and Medicine, Library Archives and Special
    Collections, Science Museum Library

26. Queen's Tower

27. Skempton Building
    Civil and Environmental Engineering, Centre for Environmental
    Control and Waste Management, Reach Out Lab, Centre for
    Transport Studies

28. Mechanical Engineering Building
    Business School, ICT, Mechanical Engineering, Centre for
    Environmental Technology, Vibration University Technology
    Centre

29. Southside
    Falmouth Keogh Hall, Selkirk Hall, Tizard Hall, Health Centre,
    Dentist

30. Wolfson Building
    Biology, Cell and Molecular Biology, Molecular Biosciences,
    Centre for Bioinformatics, Centre for Biomolecular Electron
    Microscopy, Glycobiology Training, Research and Infrastructure
    Centre, Centre for Structural Biology

31. Flowers Building
    Cell and Molecular Biology, Chemistry, Centre for Molecular
    Microbiology and Infection,

32. Chemical Building
    Chemistry

33. Sir Alexander Fleming Building
    Medicine, Biology, Biomedical Sciences, Cell and Molecular
    Biology, Molecular Biosciences, Advanced Biotechnology
    Centre, Centre for Chronobiology

34. Chemistry RCS1
    Biochemistry, Biology, Centre for Photomolecular Sciences,
    Chemistry

35. 52 Prince's Gate
    Imperial Innovations
APPENDIX V: Map of Royal Brompton Campus

1. Guy Scadding Building
2. Emmanuel Kaye
3. Sydney Wing, Royal Brompton Hospital
4. Chelsea Wing, Royal Brompton Hospital
APPENDIX VI: Map of St Mary’s Campus

1. Paterson Wing
2. Queen Elizabeth
   The Queen Mother Wing
3. Mint Wing
4. St Mary’s Hospital
5. School of Medicine
6. Winston Churchill Wing
7. 59 North Wharf Road
A to Z list

A
Anaesthetics, Pain Medicine and Intensive Care, Queen Elizabeth The Queen Mother Wing 2

B
Bio Surgery and Surgical Technology, Queen Elizabeth The Queen Mother Wing 2

C
Cardiology, Queen Elizabeth The Queen Mother Wing 2
Central Teaching, Cambridge Wing, St Mary’s Hospital 4
Chemical Pathology, School of Medicine 5
Child and Adolescent Psychiatry, Queen Elizabeth The Queen Mother Wing 2
Clinical Skills Teaching Suite (Chancellor’s Teaching Centre), Queen Elizabeth The Queen Mother Wing 2

D
Disease Prevention (Hypertension and Circulation), Queen Elizabeth The Queen Mother Wing 2
Disease Prevention (Epidemiology and Clinical Trials, Hypertension and Circulation), 29-41 North Wharf Road 7

E
Electrophysiology and pacing, Queen Elizabeth The Queen Mother Wing 2
EPHP Divisional Administration, School of Medicine 5
Epidemiology and Public Health, School of Medicine 5
Estates Administration, School of Medicine 5

F
Finance: Cash office, School of Medicine 5

H
Health and Safety, School of Medicine 5
Hematology, Queen Elizabeth The Queen Mother Wing 2
Histology, School of Medicine 5
Human Resources, School of Medicine 5

I
ICSM Central Administration, School of Medicine 5
ICT, Mint Wing 3
Immunology, School of Medicine 5
Infectious Diseases Epidemiology, School of Medicine 5

L
Library Services, School of Medicine 5

M
Maintenance, School of Medicine 5
Medicine Divisional Administration, School of Medicine 5
Metabolic Medicine, Mint Wing 3

N
Neuroscience and Mental Health: Stroke Medicine, School of Medicine 5
NHS Chemical Pathology, School of Medicine 5
NHS Diagnostic Bacteriology, School of Medicine 5
NHS Trust, Mint Wing 3
NHS Trust, School of Medicine 5

P
Paediatrics, School of Medicine 5
Pickering Unit, Queen Elizabeth The Queen Mother Wing 2

R
Reproductive Biology, Mint Wing 3
Research Services Division, School of Medicine 5

S
Section of Infectious Diseases, School of Medicine 5
Section of Infectious Diseases: Clinical Trials Administration, School of Medicine 5
Section of Infectious Diseases: Clinical Trials Unit, Winston Churchill Wing 6
Security Services, School of Medicine 5
Sports and Leisure Services, School of Medicine 5

U
Undergraduate Medical Office, School of Medicine 5

V
Virology, School of Medicine 5

W
Welcome Centre for Clinical Tropical Medicine, School of Medicine 5
APPENDIX VII: Map of Hammersmith Campus