

## Course Description Document

Course Title	Integrated PhD in Biomedical Science (2024-25)
Course Code	9978
Award Title	Doctor of Philosophy (PhD)
Awarding Body	University of Southampton
Teaching Institution	University of Southampton
Regulated by	Office for Students
Accreditation	None
Regulations	The Regulations of the University can be found on the University's Governance Webpages: <a href="https://www.southampton.ac.uk/about/governance/regulations-policies">https://www.southampton.ac.uk/about/governance/regulations-policies</a>
Location of study	Southampton
Length of the course	54 Months
Tuition Fees	Fees for students can be located by the student fees page. <a href="https://www.southampton.ac.uk/student-services/money-matters/student-fees/index.page">https://www.southampton.ac.uk/student-services/money-matters/student-fees/index.page</a>

## Course Overview

The programme offers an opportunity to develop the advanced research and associated quantitative and bioinformatics skills required to become an independent researcher in biomedical sciences. The programme leads to a Doctor of Philosophy (PhD) award. An exit award of Master of Research (MRes) will be awarded to those students who are considered by the Board of Examiners to have successfully completed Year 1 of the programme and exiting the programme before the end of the PhD.

In the first year of the programme, students will undertake taught modules in research skills, in biomedical sciences, quantitative cell biology and thematic optional modules. Students will also undertake three research projects to develop a broad range of laboratory skills and experience working in different research environments. In this first year, students will develop core research skills including critical appraisal, scientific writing, written and oral presentation, statistical analysis and a range of key techniques used in biomedical research. In years 2-4 students will complete a focused piece of research leading to a PhD.

## Aims of the Course

The aims of the programme are to:

- Enable competency in a broad range of state-of-the-art quantitative biomedical techniques in order to

assimilate rapidly into the main project and to bring a mature perspective based on broad experimental experience.

- Provide advanced courses with which to develop knowledge and analytical skills in specific areas of Biomedical Sciences that are relevant to disease-oriented research, and to use this knowledge to inform research projects\*
- Make a unique and significant contribution to the knowledge and understanding of a chosen field.
- Undertake critical evaluation of current research, propose new hypotheses and evaluate methodologies.
- Encourage scrutiny and debate of issues related to research design, instrument selection and the evidence base for currently held ideas.
- Undertake research utilising current and novel methodological principles, which are appropriate to the advancement of scientific understanding and the promotion of new approaches to the treatment of disease and illness.
- Apply knowledge, analytical and critical thinking skills to develop sound judgements about data and to integrate research evidence into all aspects of model making and hypothesis building.
- Enable justification of scientific and professional decisions through critical evaluation and synthesis of relevant theories, empirical evidence and personal research experience.
- Present one's own research findings, as well as those of others in a lucid and scholarly manner.

\*NB. Students will be given as much choice for their final 3-year PhD project as possible whilst keeping within the limits of sponsors' terms and conditions.

## Course Structure

Your course combines a series of taught modules with supervised research, and you will also have access to a programme of research skills, professional development and transferrable skills training. You will undertake reviews at regular intervals to assess your progress and will submit a thesis for examination at the end of your period of candidature.

The taught element of your course requires you to study a defined number of credits and the tables below provide a list of the prescribed modules that make up your course. Each module is worth a specified number of credits: you can take a combination of core and compulsory modules enabling you to cover key subject knowledge. Some courses have option modules which enable you to develop your own interests. The number of option modules you can take depends on the number of core modules at a given level and this is also influenced by the requirements of the regulatory requirements for professionally accredited courses. Some courses also have pre and co-requisites, and these are included in individual module information. If we have insufficient numbers of students interested in an option module, it may not be offered. If an optional module will not be run, we will advise you as soon as possible and help you choose an alternative module.

Your learning will be informed by research, and modules can change periodically to reflect developments in the discipline. You can always find the most up-to-date information about your modules and who is teaching them via the information on our webpages and, post enrolment, via the Faculty hub.

The core and compulsory modules available on your course are as follows:

### Part I

The first year is modular in structure and leads to the qualification of Master of Research (MRes). Modules are up to 20 ECTS credits at FHEQ Level 7. Each module has its own aims, learning outcomes and

assessment criteria. A total of 90 ECTS credits must be successfully completed during this year, which will consist of the three Research project modules, the modules in Quantitative Cell Biology and Research Skills for Biomedical Science 1 and 2, which makes 80 ECTS for the core modules, alongside a minimum of 10 ECTS on the thematic optional modules. Each of the three Research Project modules (A, B and C) will typically be performed with a different supervisor in a different research laboratory.

The Research Skills for Biomedical Science-1 (RSBS-1) module uses a combination of taught and practical sessions to introduce students to the core concepts underlying statistical analysis and study design supporting students in handling their own data and critically appraising data. In RSBS-2, students will build on their learning in RSBS-1 and develop a research proposal for their substantive PhD project in years 2-4.

In the Quantitative Cell Biology module students are introduced to a range of techniques and core concepts through a series of facilitator-led workshops focusing on key technologies including genomics and genetic disease, bioinformatics analysis of “omics” datasets (RNAseq, microarray), high throughput and high content screening strategies and deriving clusters, networks, pathways and models from large datasets. Integral to these workshops will be a mix of facilitator and peer to peer learning sessions. This module will also be attended by students from Queen Mary University London (QMUL), who will be taught and assessed by the University of Southampton as part of the Medical Research Council Doctoral Training Partnership (MRC DTP) that exists between the two institutions.

In the thematic optional modules students will deepens their thematic and specialist knowledge and develop the skills required to understand and critically interpret research findings.

In the three research projects, students will be introduced to a range of laboratory skills gaining valuable practical experience of research methodology, experimental design, data interpretation and scientific writing. Students will also present work from one of their projects at a programme away day jointly held with our MRC DTP partner QMUL.

<b>Code</b>	<b>Module Title</b>	<b>ECTS</b>	<b>Type</b>
DEMO6034	Population and Reproductive Health 2024-25	7.5	Optional
BIOL6076	Biomedical Parasitology 2024-25	7.5	Optional
GLHE6007	Methods and Analysis of Global Health Trends and Differentials 2024-25	7.5	Optional
MEDI6227	Quantitative Cell Biology 2024-25	10	Core
MEDI6232	Research Skills for Biomedical Science 1 (RSBS 1) 2024-25	5	Core
MEDI6231	Research Skills for Biomedical Science 2 2024-25	5	Core
MEDI6033	Short Research Project A 2024-25	20	Core
MEDI6032	Short Research Project B 2024-25	20	Core
MEDI6036	Short Research Project C 2024-25	20	Core
BIOL6047	Biofilms and Microbial Communities 2024-25	7.5	Optional
MEDI6035	Cancer Immunology 2024-25	10	Optional
MEDI6068	Communicable Disease Control 2024-25	5	Optional
MEDI6038	Immunity & Infection 2024-25	10	Optional
BIOL6045	Neurodegenerative Disease 2024-25	7.5	Optional
BIOL6034	Systems Neuroscience 2024-25	7.5	Optional

## Learning and Teaching

Full information about contact hours is provided in individual module information and your overall workload for the taught element of your course consists of class contact hours, independent learning, and assessment

activity, with each ECTS credit taken equivalent to 20 hours of student effort. When not attending lectures, seminars and other timetabled sessions you will be expected to continue your module learning independently through self-study. Typically, this will involve reading journal articles and books, working on individual and group projects, undertaking research in the library, preparing coursework assignments and presentations, and preparing for other types of assessments and examinations.

Unlike taught courses, the open-ended nature of research means it is not possible to always predict the structure of a course of study leading to the submission of a thesis for examination. You will develop knowledge in your chosen area of research through reading and will review previous work in the area. You will also develop your research questions and conduct analyses, where appropriate. As you progress beyond the outset of the research element of your course, you will expand on the work already started and to enter fully into the analysis of the research questions, ultimately preparing your thesis for submission.

## **How we'll assess you**

The taught element of your course provides you with opportunities to test your understanding of the subject informally before you complete the formal assessments that count towards your module mark. Each module normally contains at least one piece of practice or formative assessment for which you receive feedback. Formative assessments are developmental and whilst any results do not count towards your module mark, they are an important part of your learning. Summative assessment(s) usually take place at the end of each module, although some may have interim assessments throughout the year. Assessment methods might include written examinations and a range of coursework assessments such as essays, reports, portfolios, performance, presentations and projects. The marks from summative assessments count towards your module mark.

Your progress will also be assessed through progression reviews at fixed points during your candidature, and you will be formally assessed for Confirmation of Doctoral Candidature at your Second Progression Review. Target dates for successive stages of your research will be set to encourage timely submission of your thesis. The assessment of your thesis will include a *viva voce*.

## **Staff involved in delivering the different elements of your course**

You will be taught by an experienced teaching team whose expertise and knowledge are closely matched to the content of the modules on your course. The team includes senior academics, professional practitioners with industry experience, demonstrators and technical officers.

Postgraduate research students who have undertaken appropriate training may also contribute to the teaching of seminars if their research specialism is directly related to the topic of the module. They may also be involved in practical classes, project work and field trips, but all contributions will be carried out under the supervision of the module leader.

Your research will be supervised by a team chosen to provide adequate academic expertise. Your main supervisor will have responsibility for the supervision of the design and progress of your research project and for providing academic advice to you.

# Fees

## What your fees pay for

Your tuition fees pay for the full cost of tuition and standard exams.

## Extra costs you may experience

Accommodation and living costs, such as travel and food, are not included in your tuition fees. There may also be extra costs for retake and professional exams.

Depending on the nature of your course, you may be able to choose modules which may have additional costs, such as field studies, travel overseas or industrial placements which will change the overall cost of your course. Details of these costs can be found in module information.

Please also ensure you read the section on additional costs in the [Fees, Charges and Expenses Regulations](#).

## The following course-related costs are not included in your fees:

Type	Details
Calculators	Where a calculator is required, all Casio Calculators are allowed but they must be Non-Programmable, Scientific models. More information is available in the Examination Regulations <a href="https://www.southampton.ac.uk/studentadmin/assessment/assessment-overview/exam-regulations.page">https://www.southampton.ac.uk/studentadmin/assessment/assessment-overview/exam-regulations.page</a>
Stationery	You will be expected to provide your own day-to-day stationery items, e.g. pens, pencils, notebooks, etc. Any specialist stationery items that you may need will be specified in the relevant module profile.
Textbooks	Where a module specifies essential texts, the Library will identify the optimal option(s) to support the module via the course Reading List. This may include e-books (ideally with unlimited concurrent usage) or a digitised chapter extract, supported by a limited number of print books (where available). You may request that the Library purchases additional print copies via ' <a href="#">suggest a book</a> ', borrow an additional copy via our <a href="#">inter-library-loans service</a> or you may prefer to buy your own copies for high demand titles.
Printing	In most cases, written coursework such as essays and projects are submitted online. However it may be necessary to submit a hard copy of some projects, business projects and dissertations. The costs of printing a hard copy for submission of such work will be your responsibility. You will also have to cover the cost of photocopying. <a href="https://www.southampton.ac.uk/isolutions/students/printing">https://www.southampton.ac.uk/isolutions/students/printing</a> .
Conference expenses	Accommodation Students may have the opportunity to attend an academic conference during their studies. They would not normally be expected to pay for the costs of any accommodation directly associated with the conference. They would be expected to pay for incidental expenses e.g. meals.

	<p><b>Travel</b></p> <p>Students may have the opportunity to attend an academic conference during their studies. They would not normally be expected to pay for the costs of any travel directly associated with the conference.</p>
Fieldwork: logistical costs	<p>Depending on the nature of the research project, students may complete fieldwork/data collection at locations other than Southampton.</p> <p><b>Accommodation</b></p> <p>They would not normally be expected to pay for the costs of any accommodation associated with the fieldwork/data collection. They would be expected to pay for incidental expenses e.g. meals.</p> <p><b>Insurance</b></p> <p>They would not normally be expected to pay for the costs of any insurance. Students should check their own vehicle insurance to ensure they are appropriately covered for undertaking fieldwork/data collection.</p> <p><b>Travel costs</b></p> <p>They would not normally be expected to pay for the costs of any travel associated with the fieldwork/data collection.</p> <p><b>Immunisation/ vaccination costs</b></p> <p>They would normally be expected to pay for any immunisation/vaccination costs associated with overseas travel if they are located outside of the UK.</p>
Hardware	<p>Across all campuses and most halls of residence approximately 1700 computer workstations are available. Currently all students are provided with a desktop or laptop computer to support their studies.</p>
Occupational Health, DBS checks or vaccinations	<p>Some research projects may require students to undertake a Disclosure and Barring Service (DBS) check.</p>
Placements (including Study Abroad Programmes)	<p>Depending on the nature of the research project, students may attend a placement with an industry partner or collaborative institution.</p> <p><b>Accommodation</b></p> <p>They would not normally be expected to pay for the costs of any accommodation associated with the placement. They would be expected to pay for incidental expenses e.g. meals.</p> <p><b>Insurance</b></p> <p>They would not normally be expected to pay the costs of any insurance. Students should check their own vehicle insurance to ensure they are appropriately covered for travel to placements.</p> <p><b>Medical insurance</b></p> <p>They would not normally be expected to pay the costs of any medical</p>

	<p>insurance unless you are located in the USA.</p> <p>Travel costs They would not normally be expected to pay for the costs of any travel associated with the placement.</p> <p>Immunisation/ vaccination costs They would normally be expected to pay for any immunisation/vaccination costs associated with overseas travel if they are located outside of the UK.</p>
Printing and Photocopying Costs	<p>In the majority of cases, coursework such as essays; projects; dissertations is likely to be submitted on line. However, there are some items where it is not possible to submit on line and students will be asked to provide a printed copy. University printing costs, follow link <a href="http://www.southampton.ac.uk/isolutions/students/printing-for-students.page?">http://www.southampton.ac.uk/isolutions/students/printing-for-students.page?</a></p>
Software Licenses	No costs will be incurred when using University computer facilities.
Stationery	Students will be expected to provide their own day-to-day stationery items, e.g. pens, pencils, notebooks, etc.). Any specialist stationery items will be specified under the Additional Costs tab of the relevant module profile.

## Funding and Scholarships

Information on funding opportunities can be found at <https://www.southampton.ac.uk/doctoral-college/funding-opportunities.page>.

## Financial Support

The Student Services Centre offers support and advice regarding student finances. You may be able to access our Student Support fund and other sources of financial support during your course. You can find more information about financial support via our webpages:

<https://www.southampton.ac.uk/student-services/money-matters/student-support-fund/index.page>

## Academic support

The Student Support Hub is your first point of contact when it comes to seeking support. The team are here to answer your questions or concerns about your wellbeing, fees and funding, accommodation and visas. The team will help make sure you receive the support you need, guiding you to further support services where required. You can find more information about student support via our webpages:

<https://www.southampton.ac.uk/student-services/index.page>

You will be allocated to a supervisory team consisting of at least two supervisors from the University of Southampton. Further information on the support available to you as a postgraduate research student can be found at <https://www.southampton.ac.uk/doctoral-college/researcher-support/index.page>.

## Disclaimer

As a research-led University, we undertake a continuous review of our courses to ensure quality enhancement and to manage our resources. As a result, this course may be revised during a student's period of registration; however, any revision will be balanced against the requirement that the student should receive the educational service expected. Please read our [Disclaimer](#) to see why, when and how changes may be made to a student's course.