University of BRISTOL

SCHOOL OF CELLULAR & MOLECULAR MEDICINE

HANDBOOK FOR HONOURS STUDENTS

2013/2014

INTRODUCTION

The School of Cellular and Molecular Medicine is located in the Medical Sciences Building and also has practicing clinical staff working in the major Bristol hospitals. The School belongs to the Faculty of Medical & Veterinary Science, one of the six faculties that constitute the University of Bristol.

The School is responsible for the teaching of all aspects of cancer biology, immunology, bacteriology, virology, stem cell biology and regenerative medicine to our own science undergraduates, to those from other Schools and to medical and dental students. Our science courses are designed to provide students with a wide variety of choices, allowing them to specialize as their interests develop.

The high quality of the teaching that the School carries out has been reflected in excellent National Student Survey results, in which 97% of students expressed overall satisfaction with their course (2013 graduates) and at the last Teaching Quality Assurance assessment exercise, when the School scored a maximum 24 out of 24 points. These markers of achievement highlight that the School very successfully balances its aims, which are to teach and to carry out high quality research into the processes underlying human disease, its treatment and prevention. As a result, the scientific research and teaching of the School are conducted with a focused clinical perspective. Our students are taught both by scientists and clinicians, and our research ranges from studies of basic biological processes to work addressing acute clinical needs.

The staff of the School have widespread interests in Cellular and Molecular Medicine, which are relevant to our goal of turning science into medicine. They are able to draw upon their research expertise to ensure that the teaching enjoyed by our students reflects the cutting edge of the subject matter. Indeed, a key element of our undergraduate courses is a major final year research project frequently carried out within one of the internationally recognized research teams in the School. This gives our students experience of the research process and provides them with a competitive edge when applying for higher degrees or future employment. The projects allow our students to contribute to important problems in contemporary cellular and molecular medicine.

The city of Bristol is an exciting place in which to live and study and the University of Bristol is one of the top universities in the UK. Set against this very attractive background, the School aims to provide a stimulating and enjoyable environment where students and staff can achieve their teaching, learning and research goals in the fullest possible sense.

We hope that you will find this handbook a useful aid in getting the maximum benefit from your time at Bristol. It also outlines some of the rules and regulations regulating student life at Bristol. You should make yourself aware of these, because there can be serious consequences for failing to do so. For example, being unaware of the University's Rules and Regulations for plagiarism may lead to a student unintentionally plagiarising the work of another which could result in disciplinary action or a zero mark being awarded for a unit.

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A. GENERAL INFORMATION

1. *DATES 2013 – 2014*

ALL STUDENTS

Introductory Week	23 - 29 September 2013
Teaching Block 1	30 September 2013 - 20 December 2013
Christmas Vacation	23 December 2013 - 10 January 2014
January Assessment Period	13-24 January 2014
Teaching Block 2	27 January 2014 - 9 May 2014
Easter Vacation	7-25 April 2014
Bank Holidays	5 and 26 May 2014
Summer Revision Week	12-16 May 2014
Summer Assessment Period	19 May - 6 June 2014
Examination results (provisional dates)	School exam board: Week beginning 23 June Faculty exam board: Mon 30 June
Summer Vacation	16 June - 19 September 2014
Re-sits and Supplementary Exams	28 August - 10 September 2014

FIRST YEAR

Introductory Week	23 - 29 September 2013
CMM Registration	Mon 23 Sept, 2.30pm (E45; Medical Sciences Building)
Mature students induction (for students over 20)	Mon 23 Sept, 11am (1.11; Merchant Venturers Building)
Faculty registration	Tues 24 Sept, 9.30am (Wills Memorial Building)
Library session	Tues 24 Sept: Surnames A-J: 10.30am Surnames K-Z: 11.30am (Medical Sciences Building)
Activities with second year students	Tues 24 Sept 12.30pm (details to follow)
Freshers' gathering *(Meet your personal tutor and* college parent)	Tues 24 Sept, 4pm (Chemistry Foyer, Chemistry Building)
Faculty Induction	Weds 25 Sept, 10am (E29, Medical Sciences Building)
Mature students study skills	Weds 25 Sept, 2pm (G25, Wills Memorial Building)
International students welcome event	Weds 25 Sept, 2pm (Great Hall, Wills Memorial Building)
Freshers' fair	Thu 26 Sept, 2pm (Harbourside)
CMM International students welcome	Thu 26 Sept, 11am (G57; Medical Sciences Building)
Essay writing skills	Fri 27 Sept, 11.30am (C44; Medical Sciences Building)

SECOND YEAR

Introductory Week	23 - 29 September 2013
Tours for first year students (Second year students can act as guides)	Mon 23 Sept, 4pm
CMM Registration	Tues 24 Sept, 9am (C42; Medical Sciences Building) - **please arrive for a prompt 9am start**
Activities with first year students	Tues 24 Sept 12.30pm (details to follow)
Freshers' gathering *(For year 2 students who volunteered to be College Parents this is an opportunity to meet their "Children")*	Tues 24 Sept, 4pm (Chemistry Foyer, Chemistry Building)
Teaching Block 1	30 September 2013 - 20 December 2013
Trip to the Jenner Museum, Berkley, Gloucestershire	Students on Monday Infection and Immunity practical group: Mon 30 Sept, 1.30-5.30pm Students on Tuesday Infection and Immunity practical group: Tues 1 Oct, 1.30-5.30pm

THIRD YEAR

Introductory Week	23 - 29 September 2013
Introductory Talks and Registration	Fri 27 Sept, 10am (C42; Medical Sciences Building) - **please arrive for a prompt 10am start**
Lunch and meet your Personal Tutor	Fri 27 Sept, 12.30-2.30pm (D3; Medical Sciences Building)

Teaching Block 1	30 September 2013 - 20 December 2013
School seminars	Fridays 1pm (C44, Medical Sciences Building)
Searching Databases and use of Endnote	Surnames A-H: Tues 1 Oct, 12.30-2pm I-Q: Thu 3 Oct, 12.30-2pm R-Z: Fri 4 Oct, 12.30-2pm (Medical Sciences Library, PC Rm1)
Reading a Scientific Paper *(Dr Matthew Avison,* *Senior Lecturer in Microbiology)*	Thu 3 Oct, 3-5pm (SM1; Maths)
"How Science Works: Power, Proof and Passion" (*Public engagement with science talk & discussion by Dr Michael Mosley)*	Fri 4 Oct, 3-5pm (E29, Medical Sciences Building)
Improving your IT skills *(Dr Colin Steward,* *Reader in Stem Cell Transplantation)*	Mon 7 Oct, 2-4pm (SM1; Maths)

PhD and MSc Opportunities *(Dr Matthew Avison, Post-graduate Tutor)*	Tues 8 Oct, 2-3pm (C42; Medical Sciences Building)
Flow Cytometry *(Dr Andy Herman, Director of Flow Cytometry Facility)* (For all those taking units in Immunology, Haemopoietic Stem Cell Transplantation & Regenerative Medicine)	Thu 10 Oct, 2-3pm (C44; Medical Sciences Building)
Career options with a CMM Degree *(Jo Hutchings, Careers Service)*	Fri 11 Oct, 3-6pm **(PROVISIONAL)** (C42; Medical Sciences Building)
Safety for practical projects in the Medical Sciences Building *(Dr Keith Brown, School Safety Adviser)*	Mon 14 Oct, 12noon-1pm (SM1, Maths)
Presentation Skills; Tips for Project Talks *(Dr Ann Pullen, Director of Teaching CMM)*	Fri 18 Oct, 2-4pm (SM1, Maths)
Writing your Project Dissertation *(Dr Ann Pullen, Director of Teaching CMM)*	Fri 25 Oct, 2-4pm (SM1; Maths)
Essay Writing *(Dr Keith Brown, Reader in Molecular Pathology)*	Fri 1 Nov, 3-5pm (C42; Medical Sciences Building)
Project talks	November 11-15, Various afternoons: TBA

Degree Congregations	July 11-18 2014

2. *UNIVERSITY LIFE: RULES AND REGULATIONS*

Students should be aware of their responsibilities in respect of their academic contribution and as part of the wider School, Faculty and University communities. The University's Rules and Regulations set out student Rights and Responsibilities and all students should be aware of the information contained in these Rules and Regulations, which can be found at: *www.bristol.ac.uk/secretary/studentrulesregs/.*

If a student has a complaint about any aspect of University life, it should be raised with an appropriate person at the earliest opportunity; see Appendix 6 (page 65).

3. *KEEPING IN TOUCH*

Do remember to check your email and Blackboard regularly, at least twice per week during teaching blocks is strongly recommended.

(i) Email

Email is the primary method of contact within the School and you should access your email regularly to check for messages. All students are given an email account when they arrive. This is for communication with members of staff and also allows them to keep in contact with friends. Access your email account from inside or outside the University using Gmail at: *www.bristol.ac.uk/email*

(ii) Blackboard

Blackboard is the University's centrally supported virtual learning environment and can be accessed via the Internet at *www.ole.bris.ac.uk*. You will be automatically registered to have access to the material for the units you take.

You should consult Blackboard regularly for information about the units you are taking.

(iii) Mail, pigeonholes and notices

Mail for students is placed in the pigeon holes outside room G49 (School Office) for collection, but owing to limitations of space, please do not use the School as an address unless really necessary: a large amount of post has to be sorted each day and items for individual students could get lost.

Notices are posted either on the School boards in the main concourse of the Medical Sciences Building, in the corridor leading to the teaching laboratory in E45 or on G floor for year 3. Notices regarding the student society "The Cell" are posted on boards in the main concourse of the Medical Sciences Building. Notices about MSc and PhD places are posted on G floor. Notices specific to individual units will be posted on Blackboard (see A.3(ii) above). Notices of general concern to all undergraduate members of the School are also likely to be emailed to them.

(iv) StudentInfo

Your personal details, the Programme and units you are registered for and your exam timetable (when available) can be found at *www.bris.ac.uk/studentinfo/*. Access requires your UOB username and password. You can use this facility to amend details like addresses and 'phone numbers. It is important that this information is up-to-date so that we can contact you in an emergency.

4. *STUDENT SUPPORT*

(i) Student Services website

www.bristol.ac.uk/studentservices/

The University runs this website in partnership with the Students' Union. The site provides links to services and answers to frequently asked questions on many aspects of student life. The main categories of information are: Multifaith Chaplaincy, Students' Health Service, Student Counselling Service, Disability Services, Careers Service and Vulnerable Students' Support. Particular information for certain student groups, for example international students: *www.bristol.ac.uk/internationalcentre*, is also available.

(ii) The Students' Union (UBU) Information Point

Located on Tyndall Avenue next to the new Careers Service, the Info Point serves as a first point of contact for the Students' Union, helping you access information, advice and providing a gateway to UBU sports clubs, societies, volunteering opportunities and our events programme, amongst a whole range of other services.

The Info Point is open 9am - 5pm, Monday to Friday during teaching blocks.

The main UBU is in Queens Road

Web: *www.ubu.org.uk/*
Tel: 0117 331 8600.
Email: *ubu-informationpoint@bristol.ac.uk*

(iii) Registration with a doctor

You are strongly advised to register with the Bristol Student Health Service when you arrive in Bristol. Not only will it provide you with medical care should you need it, but will also provide certification if you are ill and have to miss practicals, examinations or other work that contributes significantly to the final assessment. **The Student Health Service is not prepared to provide medical certificates for students who are not registered with them.** If you are not registered, there may be major problems if you are taken ill just before or during examinations: a medical certificate is required to substantiate illness.
See: *www.bristol.ac.uk/students-health/*.

(iv) Academic Personal Tutors and Senior Tutor

As indicated in section B.6, these people can help with a wide range of problems, in addition to academic queries. If you have medical or other difficulties you may discuss the matter with your Personal Tutor and/or the Senior Tutor (Dr Ann Pullen). If these difficulties interfere or might interfere with your work, it is essential that Dr Pullen is informed promptly.

(v) The Student Counselling Service

The Student Counselling Service (tel. external 9546655 or internal 46655) offers professional and confidential help to students of the University with any problems. These include anxiety, study and examination pressures, friends, family and loneliness. The service is situated at Hampton House; Reception is open 0900-1600 weekdays during teaching blocks and Counselling hours are 0900-2000 (1700 Friday) during teaching blocks and as advertised during vacations. **The service is completely confidential.**

See: *www.bristol.ac.uk/student-counselling/*.

See the *"Need help now?"* link for help and advice in an emergency.

(vi) Multifaith Chaplaincy

The Multifaith Chaplaincy (tel. external 9546600, internal 46600) has chaplains from all the major denominations, who are available to give counselling, and to talk through students' concerns.
See *www.bristol.ac.uk/chaplaincy/*.

(vii) Hall Tutors

Almost all students (unless they are local) will spend their first year in a Student Residence or a Student House. The Halls of Residence themselves assign students to tutors, who are often junior members of the academic staff or postgraduate students, and you can talk through problems with them. You should in particular see your Hall Warden or Senior Resident if you are unhappy with the noise level in your room or for any similar reason.

(viii) International Advice and Support

International Advice and Support exists to help all international students get the most out of their time at Bristol and has a general welfare role. Advice is given to students at all stages of their university career, from the time an offer of a place at the University is accepted to the time of their departure from the University. If international students have any questions about the visa application process or any other matter that puzzles or worries them, they should feel free to consult International Advice and Support. In addition, Dr K Brown (G57; *Keith.Brown@bris.ac.uk*) acts as the School contact for international students.
For more information see: *www.bristol.ac.uk/internationalcentre/studentsupport/*.

(ix) Disability

If you have a disability then you should make this clear at the beginning of your studies. Your Personal Tutor should be your first point of contact if you are experiencing difficulties. In addition, Dr A Pullen (G54A; *A.M.Pullen@bris.ac.uk*) is the School Disability Representative, who acts as a channel for information about disability matters.

Disability Services provides support and services for deaf and disabled students across the University. More information can be obtained from: *www.bristol.ac.uk/disability-services/.*

If you think that your disability requires you to have extra time in examinations, then you should seek advice from Dr Pullen. You will need to provide: a) evidence in support of your application, such as a letter from a GP/consultant or a psychologist's report and b) a completed Alternative Arrangements form to explain why you need extra time and/or support.
See: *www.bristol.ac.uk/accessunit/currentstudents/exams7.html* for further details.

(x) Mature students

The first point of contact for mature students should be their personal tutor. However, if additional support is needed, then the School contact for mature students is Prof. A Hollander (G55; *A.Hollander@bris.ac.uk*). See also *www.bris.ac.uk/study/mature/* for further information.

5. *LIBRARY SERVICES FOR STUDENTS*

Information about Library Services is available here: *www.bristol.ac.uk/library*

The Medical Library is in the Medical Sciences Building on floor B. You will need your Ucard to enter the building and to borrow books.

Although a vast amount of information is available to us on the Internet and elsewhere, it is not always easy to find high quality, relevant information when you need it for your course.

Library Services are here to help. We provide access to information by obtaining books and journals and other material in both electronic form and paper; we help you find the information you need through training sessions, advice and individual consultations and we also publish a comprehensive set of quick reference guides.

You can also find somewhere to study within the library. We provide zones to suit different preferences for social, quiet or silent study. You may also book one of our group rooms which are equipped with whiteboards and a PC so you can work with other students on shared projects.

You can use your laptop by connecting to our wireless network or borrow a laptop from the issue desk. Information on how to log in and advice on using the wireless service is available from the IT Services web pages.

Two computer rooms are available for you to use PCs on the University network.

We also have colour and black & white printers, scanners and colour and black & white photocopiers. Printers elsewhere in the university may be accessed via the wireless network. You can pay for printing and photocopying using the Printer Account Server (PAS). More information about printing is available on the IT Services web pages: *www.bristol.ac.uk/it-services*

(i) Libraries

There are 10 branch libraries at the University: you are welcome to use all of them.

Details of locations and opening hours can be found at:
www.bris.ac.uk/library/using/branches/

Ask at the Issue Desk for an introduction to the Medical Library, or pick up a *Library Guide* and *Self-Guided Tour* leaflet.

You may return books in the book box outside the library entrance when the Library is closed.

(ii) Subject librarians

Martin Hewitt is the Subject Librarian for Cellular & Molecular Medicine.

Subject Librarians are here to make sure that you can find the information you need. They obtain copies of textbooks recommended by your lecturers, provide access to academic journals and online databases as well as providing training for all students so that you can develop the skills you need to find and manage the information you need for your course.

Subject Librarians are based in an office on the ground floor of the medical library. Do come in and ask for advice or you can telephone or email the team. We also offer extra training for small groups on request.

For a guide to Library resources for your subject, see:
www.bris.ac.uk/library/support/subjects/

(iii) Finding information for your course

(a) Books

When investigating a subject for the first time, it is best to start with textbooks. You will get a good overview of the subject with explanations and further references.

Use the **Library Catalogue** to find suitable textbooks. Start searching the catalogue from the **Quick Search** area on the Library home page. Most books are available in print, but you will also find links to a growing number of e-books.

Undergraduate students may borrow up to **25 items** at any one time. Check the label at the front of the book to find out what the loan period is. Please bring your books back on time: this helps your fellow students and it means you don't have to pay us an overdue charge. You can renew your books via the Library Catalogue, or by telephone or in person.

(b) Journals

Articles in scientific journals contain more detailed and up to date **research** information. The Library subscribes to thousands of journals. From the Quick Search area on the Library home page, select the Journals tab to search for **e-journals** and **print journals**.

(c) Inter-library loans

If we don't have the book or journal article you want, use our Inter-Library Loans service. More details are on the Library web pages.

(d) Databases

To find out which articles have been published in journals about a particular subject or idea, you can search online **databases** such as Medline or Web of Science.

When you are not on campus, use the **Student Remote Desktop** to access online University resources, including your University software, files and folders. For more information, see the IT Services web pages.

(e) Borrowing

Subject Librarians work closely with the academic teaching staff to ensure that students have access to materials on their reading lists.

The Medical Library has multiple copies of core textbooks, many of which are three and seven day loans. There are also confined copies, for use only within the Library. These arrangements enable as many students as possible to have access to their core reading requirements.

Undergraduate students may borrow up to 25 items at any one time. Details about the loan period for individual items may be found on the Library Catalogue and on the borrower label at the front of the item. Please help your colleagues by returning books promptly. We charge fines for overdue books. The Library web pages contain details of all current charges. You can renew your books via the Library Catalogue, or by telephone or in person.

(iv) Training

The Medical Subject Librarians provide training to help students make the best use of Library facilities and resources, and gain essential academic information skills. Topics include: accessing journals, plagiarism and citing references; inter-library

loans, renewing and reserving items; using Library databases and reference management.

Database training guides:
www.bris.ac.uk/library/support/subjects/medfac/trainingguides.html

(v) Further help

If you have any questions about Library Services or you would like some advice on finding information, ask at the Issue Desk, e-mail *medical-librarians@bristol.ac.uk* or telephone (0117) 331 1501 (internal: 11504).

Library video tutorials:
www.bristol.ac.uk/studentskills/content/ilitskills/tutorials/allsubjects.html

Library guides: *www.bristol.ac.uk/library/help/guides/*

Follow the library on Twitter: *www.twitter.com/BristolUniLib*

6. *COMPUTERS*

(i) Availability

You will find computers useful in many ways, especially for writing essays and projects. In general, the best way of learning how to use computers and the various packages available is to get down and try them. Additional training is available through IT Services (ask at the Help Desk or see *www.bristol.ac.uk/it-services/info/students.html*).

Students are not required to purchase a computer as part of their course, although many decide to do so. Advice and information on purchasing a computer can be found at:
www.bristol.ac.uk/it-services/advice/homeusers/hardware/computers/computeradvice.html.

There are a number of computer centres available around the University precinct, many of which are open on a 24-hour basis; further information can be found at: *www.bristol.ac.uk/it-services/locations/computerrooms/.*

Within the School of Medical Sciences, open access computers can be found in the Medical Library (access the same as library opening hours) and in room TL2.1 on Level 2 of the Teaching Laboratories building (8.30am-5pm Mon-Fri during teaching blocks only).

To access UOB only sites from outside the University, use the portal **My Bristol** (see *https://portal.bris.ac.uk/mybristol/render.userLayoutRootNode.uP*.)

For new students the full details of the services provided by Information Services can be found at *www.bristol.ac.uk/it-services/info/newstudents.html*.

(ii) Residential and wireless access

Information Services provides access to email, the Internet and the University network from University accommodation, via the ResNet service: see *www.bristol.ac.uk/it-services/resnet/info/newstudents.html*. ResNet is a very high speed connection, faster than you are used to at home. You connect to ResNet using a network socket on the wall in your room or via the wireless signal in the majority of rooms. ResNet Standard is suitable for email, web access, academic research, and YouTube clips. ResNet Standard is included in your accommodation fee.

For academic year 2013/14 the University has a nomination agreement with 6 additional Unite properties: Blenheim Court, Culver House, Flavell House, Nelson House, The Rackhay, and Waverley House. These properties have Internet provided by StudentCom and do not have ResNet.

The University also offers a wireless network which provides a simple means of connecting to network resources. See *www.wireless.bris.ac.uk/* for details of wireless hotspots around the University and how to connect.

(iii) Student File Store

All students are provided with their own MyFiles "home folder" when they join the University providing at least 2GB of storage space. Your filestore space is accessible as drive "o:" and is treated as a home folder for Windows computer systems. You should normally expect the "o:" drive to be connected automatically at logon on most Windows computers within the University. You can also access it through the student remote desktop. You can also access your personal storage folder MyFiles on personal devices or your home computer.

(iv) Printing

Printing facilities using Printer Accounting Server (PAS) are available to users of computer rooms and branch libraries. PAS takes credits from a printer account associated with your UOB account. The same credits can also be used for photocopying in the library. See *www.bris.ac.uk/is/computing/applications/printing/*.

(v) Training and documentation

Courses and learning resources can be found at *www.bristol.ac.uk/studentskills/.* For example, the Student Development Unit can provide training on Academic Writing Skills to help you improve your essay writing. The faculty also has Writing Fellow (Chris Wakling; faxcw@bristol.ac.uk, tel. (0117) 928 8878 - internal 88878), who is available to help students improve their writing skills.

(vi) Help desks and further information

Information describing the services particularly relevant for new students can be found on the Information Services website at:

www.bristol.ac.uk/it-services/info/newstudents.html.

The first point of contact for any question, problem or request related to IT services is the IT service desk at the Computer Centre, 5 Tyndall Avenue. You can contact the service desk as follows:

Web: *Self service tool* (UoB only)
Email: *service-desk@bristol.ac.uk*
Phone: 0117 928 7870 / internal 87870. Mon-Fri 8:00am - 5:15pm
Counter service: Mon-Fri 9am-5pm.

7. *REFRESHMENTS AND LUNCH*

There are many possibilities. In the Medical Sciences Building there is a cafe on D Floor (immediately left after entering the building) and vending machines in the Medical Library (B Floor) and behind lecture theatre E29. There are also several shops selling sandwiches, pies, salads etc. on St. Michael's Hill and on Queen's Road / The Triangle. The Hawthorns (located opposite Senate House), is also widely used by students.

8. *CENTRE FOR ENGLISH LANGUAGE AND FOUNDATION STUDIES*

(i) English for Academic Purposes

Full-time, full fee paying international students may register for the English for Academic Purposes course (LANG10031; 10 credit points) offered by the Centre for English Language and Foundation Studies. The course aims to develop competence in the analysis and communicative use of English for academic purposes. It does this by providing input and practice in aspects of teaching, learning and assessment common to university study in the UK. Particular attention is paid to developing the language and skills necessary to write assignments, take part in discussions, listen to lectures and read academic texts. Evening sessions are available so that the unit can be taken in parallel with the Cellular and Molecular Medicine programmes.
See: *www.bristol.ac.uk/english-language/efl/in-sessional/academic.html.*

(ii) Self-access centre

The Centre for English Language and Foundation Studies provides an environment for independent learning at the Self-access centre. For further details see: *www.bris.ac.uk/languagecentre/saf/*.

9. *COURSE COSTS*

All undergraduates will need to purchase some materials associated with their course during their time at the University. These could include basic stationery materials, photocopying and printing credits, course texts, computers and software. There are no specific requirements for our courses (laboratory coats are provided, for instance).

There are some opportunities to purchase second-hand textbooks from the Blackwell's bookshop (top of Park Street), from Amazon or directly from other students. Be aware that student textbooks are frequently updated, so check that any second-hand textbook is the latest edition.

(i) Financial difficulties

Any students experiencing financial difficulties in meeting essential costs should seek advice from their personal tutor, and from the Student Funding Office. The Student Funding Office is available to offer advice and help to all undergraduate students with financial issues; further information is available at:
www.bristol.ac.uk/studentfunding/ and *www.bris.ac.uk/studenthelp.*

B. THE SCHOOL

1. *LOCATION OF AND ACCESS TO THE SCHOOL*

The main base of the School of Cellular & Molecular Medicine is in the Medical Sciences Building (see: *Google maps link*) and unqualified room numbers in this Handbook refer to this building. However, the School is also represented in the Hospitals.

Access to The Medical Sciences Building for undergraduate students is *via* the main entrance on University Walk. To gain access you must use a valid U Card on entry. This entrance is open only between 08.00 and 18.00. Outside these times, access to the Library ONLY is via the door next to the library on B-floor (go down Cantocks Steps beside the Medical Sciences Building and turn left). This entrance operates at times when the library is open but the main entrance is closed.

Entry to and exit from the Medical Sciences Building by any other door and the door by St. Michael's Hill, which allows access to Lecture Theatre 1.4 and adjacent tutorial rooms, requires a U card. During teaching blocks exit from the door adjacent to the Library is controlled by a switch. During your final year your U card will be programmed to allow you to leave the building *via* controlled doors.

2. *SCHOOL WEBSITE*

Our School website contains all the most current information about the School and has links to most of the online resources that you will require: *www.bristol.ac.uk/cellmolmed/.*

3. *SCHOOL CONTACTS*

Primary academic contact for teaching queries:

Director of Teaching: Dr Ann Pullen (Room G54A; *a.m.pullen@bris.ac.uk*; 12025)

Deputy Director of Teaching: Dr Keith Brown (Room G57; *Keith.Brown@bris.ac.uk;* 12071)

Teaching administrative support:

Miss Colleen Quinn (Room G53; *Colleen.Quinn@bristol.ac.uk*; 12009)

Miss Caroline Falzon (Room G53; *c.falzon@bristol.ac.uk*; 12098)

Level 6/H students: medical school access / finance queries:

Ms Jill Locke-Edmunds (Room G49a; *Jill.Locke-Edmunds@bristol.ac.uk*)

Safety:

Dr Keith Brown (Room G57; *Keith.Brown@bris.ac.uk*)

4. *ACADEMIC STAFF*

Details of Academic Personnel in the School are given in the Appendix 1 (page 48).

5. *PRACTICAL LABORATORIES AND LABORATORY HEALTH AND SAFETY*

Laboratory classes put on by the School are held in room E45. Safety is clearly a top priority in the design and execution of practical classes. Experiments are planned to minimise danger, but a number nonetheless may involve the use of hazardous microorganisms, corrosive or toxic chemicals, and radioisotopes. It therefore follows that you must take appropriate precautions to avoid unnecessary risk to yourself and to others around you. A brief guideline to help you avoid accidents and danger to

yourself and others in the laboratory is provided in Appendix 2 (page 53). This will be supported by a brief introductory safety talk given at the start of your first practical.

At the beginning of your Final Year you will be given a short talk on essential safety matters. In your final-year project you will probably be working in a research laboratory, where the number of potential hazards is increased, and you must ensure that you observe all the safety regulations operating in that lab. It is your supervisor's responsibility to make available to you all the documents covering the use and disposal of hazardous materials in his or her lab. Normally, this task is delegated by your supervisor to the technical staff. Local induction training will be given during your first week in the research laboratory environment. It is your responsibility to act on the information given to you. Before third year students begin work on their projects they MUST read all the relevant safety documents AND sign a sheet to acknowledge that they have done so. This signed document must be returned to the School Safety Adviser before you start work. Risk Assessments are legal requirements that cover the use of individual hazardous substances, of radio-isotopes and of genetically modified organisms.

If you think you might be pregnant YOU must inform the School so that a risk assessment can be carried out to ensure your exposure risk under this circumstance is minimised in the biological environment.

To pursue a final year project using primary human tissue, you will need to be immunised against hepatitis B virus. If you have already been immunised, you will need to produce documentary evidence to support this.

6. *ACADEMIC PERSONAL TUTORS*

Every undergraduate student in the School has a personal tutor who will be a member of the lecturing staff. You will usually keep the same personal tutor for the whole of your undergraduate career. You can talk to your tutor about any personal or academic matters that concern you. (See also Student Support; section A4). Your tutor can also provide you with information about the courses you follow and about which subsidiary subjects to take. Tutors are there to help, so feel free to ask for their advice or help in any problems you have - if your tutor cannot assist you directly, s/he will still be able to suggest where you can go for help. There may be meetings of tutorial groups from time to time to facilitate contact, but you should always feel free to approach your tutor at any time. Additionally, the Senior Tutor and Director of Teaching (Dr Ann Pullen, G54A) is available for consultation at any time. **Your tutor, final year project supervisor and/or the Director of Teaching will normally be the people from whom you will request a reference when seeking employment or post-graduate studies. It is therefore wise to keep in regular contact even if you have no problems!**

If you wish to change your tutor, see Dr Pullen.

For further information about the role of personal tutors see:
www.bristol.ac.uk/esu/studentlearning/pt/

7. *PERSONAL DIFFICULTIES THAT INTERFERE WITH WORK*

If you have medical or other difficulties you may discuss the matter with your Personal Tutor and/or the Director of Teaching (Dr Ann Pullen). If these difficulties interfere or might interfere with your work, it is **essential** that Dr Pullen is informed promptly. Such matters are seriously taken into account at all stages of assessment, but such mitigating circumstances can only usually be considered if they have been reported at the time and an Extenuating Circumstances Form is submitted before the Faculty

Special Circumstances Committee meets (see Appendix 4; page 61).
Form is available at: *www.bristol.ac.uk/academicregistry/studentforms/.*

8. *STUDENT RECORDS*

Student records in the School are held mainly on computer, under the control of Dr Ann Pullen. The Data Protection Act requires that individuals are entitled to see any personal information. Anybody who wishes to view their own record should contact Dr Pullen.

C. TEACHING

1. *GENERAL INFORMATION*

(i) Faculty Handbook and University Regulations and Code of Practice

The Handbook for Undergraduate Students of the Faculty of Medical & Veterinary Sciences provides details of the Programmes available in the Faculty and the Units that can be studied, together with the framework and Regulations they operate in. In particular, there are extracts of the relevant Ordinances, General Regulations for First Degree Programmes, Faculty Standing Orders for Undergraduate Students, and University Examinations Regulations. See "*Medical Sciences Programmes Handbook*" at:
www.bristol.ac.uk/fmvs/currentstudents/undergraduates1/

For further information see the University Regulations and Code of Practice for Taught Programmes: *www.bristol.ac.uk/esu/assessment/codeonline.html*

(ii) Organisation of Teaching in the School of Cellular & Molecular Medicine

The overall responsibility for all aspects of the School's activities rests with the Head of School. He has devolved the overall immediate responsibility for undergraduate science teaching to the Director of Teaching.

The teaching itself comprises discrete *Units*; the total Units taken during a student's University career make up the *Programme of Study*. Each Unit has a Unit Director, and Unit Directors are members of the Teaching Committee of the School, which is responsible for monitoring and maintaining teaching standards and co-ordinating course changes. A fuller description of the School teaching policy and organisation is given in Appendix 3 (page 55).

Head of School:	Prof. C Paraskeva	(Room G47)
Director of Teaching:	Dr AM Pullen	(Room G54A)
Unit Directors:		
Level 4/C (Year 1):		
Introduction to Microbiology	Prof. S Siddell	(Room E47)
Microbes and Disease	Prof. S Siddell	(Room E47)
Normal and Tumour Cells	Prof. A Williams	(Room G54)
Pathological Responses of Cells	Dr W Kafienah	(Room G53A)
Level 5/I (Year 2):		
Infection and Immunity	Dr A Davison	(Room E46)
Cellular and Molecular Pathology	Dr K Brown	(Room G57)
Year in Industry:	Dr D Matthews	(Room E49)
Level 6/H (Final Year):		
Molecular and Cellular Bacteriology	Dr A Blocker	(Room D39A)
Medical Microbiology	Dr M Avison	(Room D54)
Medical Virology	Dr D Matthews	(Room E49)
Frontiers of Virology	Dr D Matthews	(Room E49)
Developmental Genetics and Embryonal Cancers	Dr K Malik	(Room G52)
Cancer Mechanisms and Therapeutics	Prof. C Paraskeva	(Room G47)

Advanced Immunology	Dr A Pullen	(Room G54A)
Immunopathology & Applied Immunology	Dr A Pullen	(Room G54A)
Regenerative Medicine	Dr W Kafienah	(Room G53A)
Haemopoietic Stem Cell Transplantation	Dr C Steward	(BCH)
Research Skills	Dr J Spencer	(Room D52)

2. *TEACHING METHODS*

(i) Lectures

Lectures in the Faculty are timetabled to begin at 9.00, 10.00, 11.00, or 12.00, and to run for 50 minutes. Lectures may occasionally be given at other times by prior arrangement.

Lectures form the single most important component of the teaching and missing lectures will seriously affect your academic performance. Both the giving of lectures and the taking of notes are acquired skills. You will find that different lecturers have (often markedly) different styles, but the principal concern of all lectures is to provide you with the fundamental material on the subject in a manner that is readily understandable. This requires that it is delivered clearly and at the right speed, and is sufficiently structured to allow efficient note-taking. This is sometimes not as easy as it sounds, especially when complex subjects are being dealt with.

(a) Taking notes

You should try to take thorough notes during the lecture; if you have already read the relevant sections of the textbook it will greatly help you here. A good lecturer will make it clear what they consider to be the main points as opposed to items introduced for purposes of illustration. It is always a very good idea to look through your notes as soon after the lecture as possible: this allows you to assimilate the information much better and to identify problem areas. Reading and discussion of lecture material with the aid of handouts, textbooks and other information, and with the assistance of friends, provides a very valuable way of understanding and remembering the subject. It is obviously essential to have a good understanding of each lecture before attending the next in the series since the lecturer will, quite reasonably, assume that you have attended and understood earlier lectures.

Remember, your examinations in January and at the end of the year are based on the content of your lectures and this may differ from the information given in the text book. **It is likely that the lecturer will be the person who sets the relevant exam questions and marks them**. **Try to attend ALL the lectures.**

(b) Difficulties concerning lecture material

If you have difficulties understanding lecture material, there are several ways to tackle this. Firstly, lecturers should be happy to discuss any part of lectures with you. Secondly, laboratory classes can provide opportunities to discuss problems. Thirdly, material in years 1 and 2 is generally covered in text-books, and lecturers may indicate which book(s) and which sections they recommend as background reading. Fourthly, you should feel comfortable in asking any member of staff if you think that they can help you.

Handouts: Many lecturers will provide handouts. Normally, you will be given a handout at the start of a lecture and the lecturer will expect you to annotate it

during the lecture. Handouts will be posted on Blackboard *after* the relevant lecture.

(ii) Academic Tutorials

(a) What are they?

Most Level 4/C and 5/I Units have tutorials associated with them. Tutorial groups are normally made up of about 6-10 students. The tutor will take you for sessions of about 50min, during which you are often expected to give a short talk to the group, which is related to topics dealt with in recent lectures. Tutorials also provide a forum in which your set work (essays and numerical problems) may be discussed

Tutorials are probably the best opportunity for you to ask about the topics in the course. Take advantage of this. In a small group you should feel free to ask whatever you want (however silly you think the question might be). After all, if you are puzzled about a certain point, the chances are that others are too.

Attendance at tutorials is compulsory. The marks that you receive in tutorials will count towards the continuous assessment component of the year, and in the second year this will contribute to your classification mark in the final year. Marks will be recorded on eBiolabs.

(b) Preparation for tutorials.

The amount you get out of tutorials is closely related to the amount you put into them. Tutorials are *not* lectures. They are times for *you* to do the thinking, speaking and questioning. If you put effort into your tutorials they will be one of the most stimulating and rewarding parts of your course. When attending lectures or reading through your notes afterwards, you should make a note of any points you found confusing and felt were not clear to you. You should of course look them up in the relevant text-book, but may also wish to discuss them at the next tutorial. Your tutor may also recommend that you try particular questions for practice in answering certain types of questions, especially numerical ones.

(c) Attendance at and assessment of tutorials.

Tutorials are prescribed parts of the course, and attendance at them, together with carrying out of the work associated with them is required for the award of credit points. A register of attendance will be kept and it is your responsibility to make sure that you sign-in. If you know you will not be able to attend for any reason, you should seek permission from your tutor *in advance*. If you have been ill you must follow the procedure set out below (C.5(ii)).

(d) Late submission of work

Except for good reason, when a student submits prescribed course work after the due date, the following penalties will be imposed:

Time past deadline	Penalty
Up to 24 hours late	10 marks out of 100 from the mark the student would have received applies (e.g. coursework that is marked at 60% would then become 50% once the penalty is applied).
Between 24 hours and one week late	50% of overall mark lost
Over one week late	0% recorded for the work

Importantly, this will also apply to Research Project dissertations in the Final Year. If you think you have a legitimate reason to request an extension to the dissertation deadline, you must contact the Director of Teaching (Dr Pullen).

(e) Penalties for exceeding the size limit for coursework

Where a size limit has been set for coursework, penalties will be imposed on summative coursework that exceeds the set size limits. Work will be marked as normal and then subject to the penalties outlined below. The word count normally includes all text, indexes, figure legends and tables.

Coursework that exceeds the stated word limit by:	Penalty
up to 10%	10% of total mark available is deducted
between 10% and 20%	50% of total mark available is deducted
by over 20%	A mark of zero is awarded

(iii) Practical Classes

You are expected to attend ALL the practical classes associated with your courses, and to carry out any prescribed work. (A register of attendance will be kept and you must sign in.)

eBiolabs is now used for most first year and second year practical classes for the School's students. Students must make sure that they complete both pre- and post-lab online tasks for practical classes that use eBiolabs.

eBiolabs (*ebl.soms.bris.ac.uk/*) is a set of integrated tools that help students prepare for laboratory classes and help staff track student achievement. It is an on-line system and so accessible from any computer with an internet connection. It combines interactive media with formative self-evaluation assessments so that students learn the methods and techniques they will use in the lab before each practical session, without risking valuable time, equipment or materials. Students therefore come well-prepared to practical classes and they are more able to concentrate on the wider aims of the experiment, rather than blindly following the lab instructions.

A few practicals may require a paper write-up that is handed in and marked separately from eBiolabs.

If you are prevented by illness from attending a practical class, you must follow the procedure set out below (C.5(ii)). **Credit points may be withheld for unsatisfactory practical attendance and performance.**

(iv) Other Sources of Information

Apart from the lectures themselves, there will be recommended reading material such as *textbooks*, and, increasingly as you proceed through the course, reviews and research articles in the *primary scientific literature*. This additional reading material is given in order to clarify and set in context the material given in the lectures. It also provides the very important function of a starting point for reading around the subject, which is important if you are to get the best from your lectures and score high marks in examinations.

Other sources of information are your tutors and the lecturers in the unit, as well as the library and the various databases mentioned above.

Useful background information may be found on the Internet. However, take care in using material that has not been peer reviewed and may be the personal opinion of one individual only. Information on university, research institute, or government web sites is more likely to be reliable

3. *STUDY SKILLS*

Besides giving you a thorough grounding in many aspects of cellular and molecular medicine, our Programmes also aim to help you acquire what are termed ‘study skills’ (often also known as ‘transferable skills)’. These might be better termed ‘skills for life’ since they include skills that will be useful to you at many stages in your career and also in your personal life. Examples are: Presentational skills (oral and written), time management, problem solving, ability to work as part of a team, interpersonal skills such as listening and negotiating, numeracy, and last but not least, self-reflection.

At many points in the course you will be given the opportunity to learn and practise these skills and in particular, all the School’s science students will take the compulsory second year unit “Biomedical Research, Employability and Enterprise Skills”. Transferable skills will also come into practicals and their write-ups (several of the above) and tutorials (e.g. problem solving, and presentational and interpersonal skills). Writing skills necessary for essays and your project dissertation can be improved with help of the faculty Writing Fellow (Chris Wakling; faxcw@bristol.ac.uk, tel. (0117) 928 8878 - internal 88878) and numeracy skills can be helped by online exercises available on eBiolabs and Blackboard.

Perhaps the best practical example is your final year research project, which will give you the chance to exercise your presentational skills (short talk, dissertation and the *viva*), to gain familiarity with computers and with word processing, help your interpersonal skills when working as part of team in the laboratory, and also help with your time management.

You are strongly encouraged to be conscious of these skills and your development of them. The points at which these skills are delivered during your programme are outlined in Appendix 5. Dr Ann Williams is responsible for overseeing this aspect of learning in the School, and can be consulted by anyone who would like to discuss the matter.

The Student Skills Directory enables students to search for and book on to skills courses in addition to those courses run by the School: *www.bris.ac.uk/studentskills/skills_resources/.*

4. *EDUCATION FOR SUSTAINABLE DEVELOPMENT*

The School is committed to enhancing and promoting Education for Sustainable Development (ESD). UNESCO defines ESD in a broad manner covering four main areas: social and economic justice, cultural diversity, human rights of future generations and the protection and restoration of the Earth's ecosystems. It also stresses the importance of critical thinking, inter-disciplinary, multi-method approaches to assessment and challenging approaches to, and ideas about, teaching and learning. You will encounter many of these issues and approaches both directly and indirectly during the course of your studies.

Here are some topic areas, drawn directly from units that already exist within Cellular and Molecular Medicine that address ESD:

Society: Ways that microbes impact on society and describe the ways they can be controlled.

Environment: Environmental disease; viruses that have an impact on the earth's biogeochemical systems.

World Health: The global impact on public health of viruses; bioterrorism.

Ethics: Ethical issues of transfusion, transplantation and genetics.

For further links to resources to help you think about these topics see: *wikis.bris.ac.uk/pages/viewpage.action?pageId=52396883*

5. *STUDENT RESPONSIBILITIES*

(i) Student input

Students need to have realistic expectations about the level of commitment required to complete their programme and fulfil their academic potential. The University guidelines state that one credit point is broadly equivalent to 10 hours of total student input. This includes teaching, private study, revision and assessments. Therefore a 20 credit point unit will normally require 200 hours of student input. See Appendix 10, page 79. Details of the assessment load for each year are detailed in Appendix 11, page 81.

The University wishes to ensure that paid work does not adversely affect the academic progress of its students, while understanding the need to work in order to earn money. It therefore advises that, for full time students, up to 15 hours a week paid work would be reasonable over the course of the academic year.

(ii) Illness and other mitigating circumstances

You should inform the School immediately (email *cmm-absences@bris.ac.uk* or ring Colleen Quinn on 0117-3312009) if you are ill or unable to perform your studies for any reason. This can be mitigation for poor performance, but only if we know about the problem beforehand (inform Caroline Falzon; Room G53; *c.falzon@bristol.ac.uk*; 12098) and an Extenuating Circumstances Form: (*www.bristol.ac.uk/fmvs/currentstudents/undergraduates1/studentforms.html*) is submitted before the Faculty Special Circumstances Committee meets (see Appendix 4; page 61).

There are formal procedures that must be followed, particularly if you have missed course work, tutorials, practicals, assessments or examinations. Generally, for

incapacity of up to and including 5 teaching days (excluding Saturdays and Sundays), students must complete a self-certification form and give it to Colleen Quinn (Room G53); for more than 5 teaching block days (excluding Saturdays and Sundays), a medical certificate must be completed by your Doctor and given to Colleen Quinn (Room G53).
Forms available at:
www.bristol.ac.uk/fmvs/currentstudents/undergraduates1/studentforms.html

If you miss an assessment or an examination (however long the period of illness), then you **MUST** obtain a medical certificate by contacting your Doctor before or on the day of the assessment/examination and give this to Miss Caroline Falzon (Room G53) together with an Extenuating Circumstances form.

(iii) Cheating and plagiarism.

The University regards any form of cheating, in examinations or in other work, as an extremely serious offence. Penalties depend on the seriousness of the offence and range from a reduced mark for the work in question, to not awarding a qualification of any kind. Additional information may be found at:
www.bris.ac.uk/secretary/studentrulesregs/examregs.html#plagiarism

The Faculty requires all students to complete the Blackboard online exercise in academic integrity (Follow the link "Professional skills").

Plagiarism is putting forward the work of another as one's own. A student's work must be expressed in their own words, with the sources of all information referenced in the text and in the reference section at the end of the piece of work (essay, handout, dissertation, etc.).

In general, quotes are rarely used in scientific writing. However, there is nothing wrong in quoting the work of others to make a specific point, for example; *Hayday (2001) suggested that "emerging data on IELs might be an appropriate departure point for an exploration of the Third Way in immunology."* Any copied passages should be referenced and in quotation marks as shown above. Whole paragraphs of copied work are not acceptable. It should be stressed that material from the literature should be paraphrased or summarised, and certainly should not be copied word for word.

Failure to indicate work which is not your own, or the failure to acknowledge sources, is regarded as a very grave academic offence and will be severely penalised. **You should note that, when signing a copy of the University Regulations upon registration, you undertake not to engage in any form of plagiarism.** This rule applies to all assessed work. Unless there are exceptional circumstances, any piece of work containing plagiarised material will suffer an appropriate reduction of mark. Additional penalties may be imposed under section 4 of the Examination Regulations by awarding lower marks than those the student would otherwise have been awarded, or awarding no marks, for the unit of which the assessed work was part. This may in turn lead to a reduction in the class of the student's degree or an exclusion of the student from the award of a degree.

More information about plagiarism can be found at:
www.bristol.ac.uk/is/library/findinginformation/plagiarism/advice.html.

The university uses plagiarism detection software. The School will check all final year Research Project dissertations for evidence of plagiarism using this software. In Years 1 and 2 assignments may also be analysed in this way.

6. *FEEDBACK ON STUDENT PROGRESS*

All compulsory course work, such as essays will be marked and returned to you. In addition, for formative purposes you will receive feedback on your tutorial assignments, practicals and unit assessments. For tutorials, advice on any potential improvements on oral presentations and questions will be given by the tutor during the tutorial. Practical books will be marked with corrections/comments and returned to students and for practical classes using eBiolabs there will be rapid feedback on pre- and post-lab quizzes. Wherever possible, there will be a feedback session after unit assessments at which model answers will be discussed and students will have their marked essays returned to them.

7. *EXAMINATIONS AND ASSESSMENT*

(i) General information

Full rules and regulations on examinations, assessment and progression can be found at:
http://www.bristol.ac.uk/esu/assessment/codeonline.html
www.bristol.ac.uk/secretary/studentrulesregs/examregs.html

Details of the assessment load for each year of the School's programmes can be found in Appendix 11, page 81.

By default, students are not allowed to use calculators in Examinations. It will be explicitly stated if calculators may be used.

In Years 1 and 2, about 75% of Unit assessments are based on end-of-year examinations. Even in the final year, when other elements, such as your project marks, also play an important role, examinations are still the main component used in arriving at your final mark. During the course you will be given many opportunities to answer the types of questions that occur in the exams. If you wish to try additional questions, for practice, your tutor, or other members of staff, should be happy to go through them with you. Please contact them in advance to determine whether they will be available to accommodate your request.

As always, the secret to examination success is steady work rather than a last minute panicked revision session. It is certainly a very good idea to keep abreast of the course work as you go along - this will help you understand the lectures as you meet them, as well as provide an excellent preparation for the exams. You should also make sure that you know what format the exams take - how many questions you will be expected to answer, what topics are likely to be covered in each exam, and how long you can spend on each answer.

Exam papers from previous years are available for each of the School's units on the School website:
www.bristol.ac.uk/cellmolmed/current-undergraduates/ug-teaching.html.

Here are a few basic guidelines to answering exam questions.

1. Marks are awarded for your answer to the question that is asked - make sure that you *do* answer the question that is asked and not the one you would like to answer.
2. You will get no marks for putting down material that is not relevant and you may even lose them, since the marker will get the impression that you do not know what is relevant and what is not.
3. With essays, make a plan first of all: this will help you marshal your thoughts and the facts at your disposal. It will also help you not to leave anything out. If

you have 30 minutes in which to answer a question it is much better to spend 5 minutes roughing out the plan of your answer and then writing for 25 minutes than to spend all 30 minutes writing down everything you can think of in no particular order.

4. You are marked not only on the content of the essay but also on how well-organised and written it is - a plan is very useful here in helping you to design an introduction and conclusions to your essay.
5. High marks are awarded if you bring **relevant** material into your answer from other groups of lectures or other units, and, especially, from 'outside reading' from textbooks or other references cited by the lecturers. (This applies particularly to Finals.)

Appendix 7 (page 66) provides some Notes on Scientific Writing.

(ii) Classification.

Exam and continuous assessment marks are considered by the School Board of Examiners in June of each year. The full guidelines for the School board of examiners are given in Appendix 4 (page 59).

(a) Class / mark band equivalents

In general, classes are equivalent to the following mark bands:

% Mark	Class
70%+	First
60-69%	Upper Second (2:1)
50-59%	Lower Second (2:2)
40-49%	Third
<40%	Fail

(iii) Credit points

Each unit has *credit points* associated with it. Award of these shows that the unit has been taken seriously. Credit points for a Unit will be awarded to a student who:

(i) Passes the Unit (at least 40% overall unit mark),
(ii) Attends all laboratory classes (except for "good cause"),
(iii) Completes all prescribed assessments,
(iv) Hands-in all prescribed work,
(v) Attends all tutorials, if prescribed (except for "good cause").

Students normally need to achieve 120 credit points in any academic year to progress, though students may be permitted to progress to the next year with a fail mark in one 20 credit point unit, so long as they achieve a pass overall in the year and meet other specified criteria. For further details see:
www.bristol.ac.uk/esu/assessment/codeonline.html

(iv) *What if I fail or can't take a mid-unit assessment or the January or summer exams*?

If you miss a mid-unit assessment for good reason e.g. illness, you will normally be allowed an opportunity to take it at a later date. However, if you fail a mid-unit assessment you will not be allowed to resit it.

If you cannot take the January or Summer exams for good reason, you will be allowed to take the exams in September ('Supplementaries').

Students (except if in the final year) who do not achieve the pass mark for a unit or fulfil any additional criteria are normally permitted a second attempt in the failed units to achieve a satisfactory standard (i.e. a 're-sit'), so long as they achieve at least a third of the credit points for the year of study at the first attempt (i.e. 40 credit points or more). A re-sit is normally completed prior to the commencement of the following year of study.

Students who fail to achieve the unit pass mark following a re-sit of the unit, are normally required to withdraw from the programme with an exit award, though they may exceptionally be permitted to either repeat the whole year of the programme or have a final re-sit opportunity as part of a 'supplementary year' (see below), in order to obtain the necessary credit points to progress.

For any unit which is passed by re-assessment such as a re-sit, the recorded mark is capped at the minimum pass mark (40%), even if the student achieves a higher mark in the re-assessment.

The University will take into account evidence if a student's performance at the time of the assessment is likely to have been affected by extenuating circumstances.

In 'Criteria for Progress' below, pass / fail, and acquisition of credit points includes September resit / supplementary exams, if taken.

(v) The 'Supplementary year'

A student who fails an assessment(s) and the subsequent re-sit(s), or as a result of extenuating circumstances, and by doing so has not achieved the credit points to allow him or her to progress, may be given the opportunity to undertake a 'supplementary year'. Students who are placed on a supplementary year are registered on the units they have failed, as well as any additional study skills units as determined by the faculty. It is the discretion of the faculties to determine how students engage with the content of the failed units, whether this be full engagement or to only fulfil specific requirements in order to pass the failed units. In all cases students are expected to be in regular contact with the faculty / school throughout the academic year. Students on the supplementary year are charged by unit as a pro rata amount of the full yearly programme fee. For information and assistance regarding funding assistance available for students taking the Supplementary Year, please contact the Student Funding Office: *student-funding@bristol.ac.uk.*

(vi) Criteria for progress

Students normally need to achieve 120 credit points in any academic year to progress, though students may be permitted to progress to the next year with a fail mark in one 20 credit point unit so long as they achieve a pass overall in the year and meet other specified criteria.

The full Regulations on student progression can be found in the University's Regulations and Code of Practice for the Assessment, Progression and Award of a Qualification for Students on Taught Programmes:
www.bristol.ac.uk/esu/assessment/codeonline.html

(vii) Prizes

The School awards several prizes each year; they may be shared, or withheld if no student is deemed to have reached the standard expected.

- The *Anna Mayr-Harting - Max Russ Book Prize* is awarded to the student in any of the B.Sc. microbiological programmes with the best performance in Year 1.
- The *SGM Prize* is awarded by the Society for General Microbiology for the best overall performance in Year 2 in any of the B.Sc. microbiological programmes.
- The *Mark Dare Prize* is awarded for the best overall performance in Year 2.
- A *School Prize* is awarded to the student who comes top of the Final Year Order of Merit.
- A second *School Prize* is awarded to the student who comes highest in the Final Year Order of Merit after completion of at least two years in the School.
- The *Anna Mayr-Harting - Max Russ Prize* is awarded to the Final Year Honours student presenting the most independent and imaginative research project in Microbiology.
- The *British Society of Immunology Prize* is awarded to the best Final Year Honours student who is proceeding with post-graduate work in Immunology.
- The *Cancer Biology* prize is awarded to the best Final Year Honours student who is proceeding with post-graduate work in Cancer Biology.

In addition, the top six students in the Faculty at the end of their second year are awarded Faculty Undergraduate Prizes.

8. *STUDENT FEEDBACK*

The School is committed to achieving the highest standards of teaching in all aspects of the courses it offers. So that we can attain this, it is vital that students give their views on all aspects of the courses it offers. Appropriate and constructive feedback is very strongly encouraged and is given serious consideration: this information is of enormous value in appraising the success (or otherwise) of individual courses and groups of lectures, and has formed the basis of improvements to courses made in recent years. There are two main channels for such feedback; questionnaires and the Staff-Student Liaison Committee. In addition to this, members of staff should always be willing to receive constructive criticism; in particular, Unit Directors should be happy to discuss any problems within their units, and the Director of Teaching will always be available to discuss any problem or observation.

(i) Questionnaires

These form the most important component of student feedback. You will receive questionnaires from time to time. Please make every effort to fill these in and return them. We treat the results of such questionnaires (which are anonymous) seriously, and you should complete them in the same constructive way. Questionnaires are usually handed out after blocks of lectures, and at the end of Units. There may also be a Questionnaire about 8 weeks into Year 1 (so that freshers can comment on their experiences) and a Questionnaire at the end of the final year. The latter enables students to comment on the Programme they have done as a whole.

Results of Questionnaires are collated and then brought to the attention of the necessary individuals and committees for action. The outcomes of the comments are also presented to the Staff-Student Liaison Committee for their comments.

(ii) Staff-Student Liaison Committee

The Staff-Student Liaison Committee (SSLC) exists as a forum for discussion between members of Staff and Student Representatives (“Course Reps”) of all aspects of teaching and student welfare in the School. The Staff is represented by

Dr K Brown (Chairman), Dr M Avison and Dr A Pullen. The Students are three representatives of each undergraduate year, plus representatives of the Level 6/H intercalating students and of students taking the MSc in Transfusion and Transplantation Sciences. Representatives are elected by online elections in Week 4, followed by training sessions organised by the Students' Union. The Committee meets in both teaching blocks and stays in contact by e-mail outside of meetings. If there is *anything* that you wish to bring to the attention of the committee, contact one of the Course Reps responsible for your year, Dr Brown or Dr Pullen.

Points raised in the SSLC are brought to the attention of the appropriate individuals, and also to the next Teaching Committee Meeting for discussion and action. Action taken is reported at the next meeting of the SSLC. At the beginning of a new academic year, the new committee is informed of changes made as a result of student feedback in the previous year. Further details can be found at: *www.bristol.ac.uk/cellmolmed/current-undergraduates/sslc/.*

9. *PROGRAMMES OF STUDY*

(i) The Programmes

Five Programmes are currently offered by the School:

Cancer Biology & Immunology	(B131)
Cellular & Molecular Medicine	(B130)
Medical Microbiology	(C521)
Pathology & Microbiology	(BC15)
Virology & Immunology	(C540)

Students may apply to spend an additional Year in Industry (see next section).

The programme specification for Cellular & Molecular Medicine is set out in Appendix 8 (page 70).

All students follow the same courses in the first year, and the same mandatory units in the second year, so that they end the second year qualified for any of the programmes, and can transfer freely between them.

(ii) Study in industry

The School offers all of the above programmes with an additional year (intercalated between the second and third year) spent on a research placement. Students indicate their interest in this option at the end of their first year. It is only available to a limited number of students, in general determined by how many students can secure a placement. These are currently offered by some pharmaceutical and biotechnologically-orientated companies, as well as research institutes. Students are responsible for applying to the companies offering placements, a number of which now receive on-line applications. Dr DA Matthews is available to provide advice and guidance. It is possible to arrange practice interviews with the careers service and they will help in preparation of a CV. These skills will also be covered in the second year unit "Biomedical Research, Employability and Enterprise Skills".

Students taking such a programme undertake a project and should, at its conclusion, be well suited to decide whether to make a career in industry; if the placement is successful they should be particularly well placed in looking for employment. They should also have had additional opportunities of acquiring the communication and other transferable skills now considered important by many employers.

During their placement year, students normally become temporary salaried employees of the company concerned and their terms and conditions of work are governed by a contract between the company and themselves. Dr Matthews liaises closely with a Supervisor nominated by the company and will normally visit the student during the year to monitor academic progress and assist with any pastoral matters. The student is assessed on the basis of a project report submitted shortly after the end of the placement year: the mark on the report contributes 10% to the final mark for the Honours Degree. Students may also be asked to submit interim progress reports. For more information on these Programmes see Dr DA Matthews.

(iii) Level 4/C (Year 1)

All students do the same Units (see Table 1, below).

It should be noted that Year 1 students in Cellular and Molecular Medicine do not take Open Units and therefore do not have to visit the Open Units Fair during Introductory Week.

Table 1. Level 4/C (year 1) Units

	Microbiology	Pathology	Biochemistry
Teaching Block 1	**Introduction to Microbiology** (PANM12041) 20cps	**Normal and Tumour Cells** (PANM12051) 20cps	**Biochemistry IG** (BIOC10100) 40cps
Teaching Block 2	**Microbes and Disease** (PANM12042) 20cps	**Pathological Responses of Cells** (PANM12052) 20cps	

(iv) Level 4/C (year 2) Units

(a) *Introduction to Microbiology* *(Director: Prof. S Siddell)*

The unit provides students a thorough grounding in microbiology, covering the basic biology of viruses, fungi, protists and bacteria, and focussing on cell structure, metabolism, genetics, identification & classification and impact on society of microbes

(b) *Microbes and Disease* *(Director: Prof. S Siddell)*

The study of infectious disease; virulence factors, host / tissue specificity; microbiological niches, epidemiology, and intervention strategies.

(c) *Normal and Tumour Cells* *(Director: Prof. A Williams)*

Study of cell and tissue structure, membrane trafficking, and growth control. Developmental biology and differentiation. Stem cells, tumour cells and the haemopoietic system.

(d) *Pathological Responses of Cells* *(Director: Dr W Kafienah)*

Basic principles of pathogenesis and how these relate to the development of specific human diseases. Use of gross pathology and histopathology in the investigation of human disease. The immune system and the immune response.

(e) *Biochemistry 1G (School of Biochemistry; Director: Dr G Cameron)*

Techniques and skills, proteins: from form to function, genes and molecular biology, organisation of the eukaryotic cell, cellular energy, use and storage, regulation of cell function.

(v) Level 4/C (year 1) textbooks

The following are recommended for level 4/C units:

For Microbiology

Microbiology: a clinical approach, by Strelkauskas (2009).

BIOS Instant Notes – Microbiology, 4th edn., by Baker, Griffiths & Nicklin (2011).

Viruses: Biology, Applications and Control, by Harper (2011).

For Pathology

Molecular Biology of the Cell, 5th edn. by Alberts *et al* (2007) **or**

Molecular Cell Biology, 6th edn. by Lodish *et al* (2007) **or**

Essential Cell Biology, 3rd edn. by Alberts *et al* (2009).

Robbins Basic Pathology, 9th edn. by Kumar et al (2012).

Janeway's Immunobiology, 8th edn. by Murphy (2011) **or**

Basic Immunology, 4th edn. by Abbas & Lichtman (2012).

For Biochemistry

Fundamentals of Biochemistry, 4th edn. by Voet, Voet & Pratt (2012) **or**

Biochemistry, 7th edn. by Berg, Tymoczo & Stryer (2012).

Multiple copies of all are kept in the short-term loan section of the medical library.

(vi) Level 5/I (year 2)

All students **must** take Recombinant DNA Technology, Gene Expression & Rearrangement, Infection & Immunity, Cellular & Molecular Pathology and Biomedical Research, Employability and Enterprise Skills; see Table 2 for units normally taken.

Optional units (20cps) can be chosen within the timetable constraints of the mandatory Units. More details will be available during a session given by the Director of Teaching during January of Year 1. Information about other optional Units can be obtained from:
www.bris.ac.uk/esu/unitprogcat/AboutUnits.jsa.

However, most students on our programmes will make up their 20cps of optional units with either Organisation & Communication in Cells (BIOC20101) or Energy & Motion in Cells (BIOC20202).

Table 2. Level 5/I (year 2) Units

	COMPULSORY			***OPTIONAL***
Teaching Block 1	**Recombinant DNA Technology** (MOLG22100) 20cps	**Infection & Immunity** (PANM22041) 20cps	**Biomedical Research, Employability**	**Organisation & Communication in Cells** (BIOC20101) 20cps

Teaching Block 2	**Gene Expression & Rearrangement** (MOLG22200) 20cps	**Cellular & Molecular Pathology** (PANM22042) 20cps	**& Enterprise Skills** (FMVS20001) 20cps	**Energy & Motion in Cells** (BIOC20202) 20cps

(vii) Level 5/I (year 2) Units

(a) *Recombinant DNA Technology (Biochemistry & CMM; Director: Prof M Szczelkun)*

Fundamental principles of gene cloning; prokaryotic and eukaryotic genome organisation; molecular analysis of DNA: genetic engineering in fungi, plants and animals; legal, ethical and safety considerations.

(b) *Gene Expression & Rearrangement (Biochem. & CMM; Director: Prof M Szczelkun)*

DNA replication and repair; genetic recombination; DNA-protein interactions; gene expression in prokaryotes and eukaryotes; selected eukaryotic systems; medical molecular genetics; plant molecular genetics.

(c) *Infection & Immunity (Director: Dr A Davidson)*

Pathogenesis of infectious diseases; the nature of host immune responses; the mechanisms of viral and bacterial immune evasion; the strategies of chemotherapy and vaccination used to treat and prevent human infection.

(d) *Cellular & Molecular Pathology (Director: Dr K Brown)*

To provide an understanding of the cellular and molecular basis of the most important types of disease that are not directly related to infectious micro-organisms.

(e) *Biomedical Research, Employability & Enterprise Skills (FVMS; Director Dr P Langton)*

This unit provides important core competencies to the biomedical science students in FMVS to equip them with the skills they will need to succeed in the final year and to enhance their employability after graduation.

(f) *Organisation & Communication in Cells (Biochemistry; Director: Prof. H Mellor)*

The structure of proteins and how they are studied experimentally, how the cell is organised at a molecular level and the intracellular signalling pathways used by cells in response to hormonal stimulation.

(g) *Energy & Motion in Cells (Biochemistry; Director: Prof. H Mellor)*

How cells extract energy from their surroundings, how they utilise cellular energy to power molecular motors and the movement of molecules around the cell and how molecular motors are used in cell movement and reorganisation.

(viii) Level 6/H (final year)

Students study the 40 credit point Research Skills Unit (includes the research project) plus FOUR 20 credit point Lecture Units (see Table 3 and below).

(a) *Cancer Biology and Immunology (B131)*

Students take at least three units from the 'Cancer' and 'Immunology' units (see below). In addition, they will normally do a research project from one these three areas.

(b) Cellular and Molecular Medicine (B130)

Students can take any four units (excluding combinations covered by other programmes). The project could be in any area.

(c) Medical Microbiology (C521)

Students take at least three from 'Microbiology' and 'Virology' units. In addition, they will normally do a related research project.

(d) Pathology & Microbiology (BC15)

Students take two from 'Microbiology' and 'Virology' units and two from 'Cancer' and 'Immunology' units. The project could be in any area.

(e) Virology & Immunology (C540)

Students take the two 'Virology' units, *Immunopathology and Applied Immunology*, and one other unit. They will normally do a 'Virology' project.

(ix) Level 6/H (final year) units

The Research Skills Unit consists of the research project (75% of the marks) and the data handling exam (25% of the marks).

The Lecture Units each occupy four weeks and generally consists of a lecture a day (about 20 lectures altogether per Unit), with the accompanying study of the original literature. All units will include a session devoted to Data Handling.

Within any Unit period the units will be timetabled to allow students to take two Units concurrently. Detailed timetables will be issued at registration in October. (**NB If there is very little demand for any particular unit, it may be withdrawn**. In that case, affected students will be informed as soon as possible, and will have to choose another Unit.)

Table 3. Level 6/H (final year) Units

UNITS			PROGRAMMES				
			Cancer Biology and Immunology	*Cellular and Molecular Medicine	Medical Microbiology	Pathology and Microbiology	Virology and Immunology
1	Molecular and Cellular Bacteriology	Microbiology units		Any 4	At least 3	2	
2	Medical Microbiology						
3	Medical Virology	Virology units					1
4	Frontiers of Virology						1
5	Developmental Genetics and Embryonal Cancers	Cancer units	At least 3			2	
6	Cancer Mechanisms and Therapeutics						
7	Advanced Immunology	Immunology units					
8	Immunopathology and Applied Immunology						1
9	Regenerative Medicine	Stem cell units					
10	Haemopoietic Stem Cell Transplantation						
11	Research skills						

* Excluding combinations of units that lead to other programmes

Compulsory units Optional units

Microbiology units

1. Molecular and Cellular Bacteriology *(Director: Dr A Blocker)*

The increasing realisation that many species of bacteria are becoming resistant to all known antibiotics has fuelled considerable interest in the mechanisms of bacterial infections. Recent studies on bacterial pathogenesis have used the enormous advances made in the disciplines of molecular and eukaryotic cellular biology. As a result, a new discipline known as Cellular Bacteriology has emerged, which dissects how bacteria and eukaryotic cells interact during the process of infection and during colonisation by normal microflora. The topic will introduce general concepts and illustrate the information by the use of selected examples of bacteria that have special niches (intracellular / extracellular) and that colonise distinct tissues (e.g. respiratory, enteric). The topic will also introduce new techniques that are being used to probe the interactions that occur between bacteria and their eukaryotic hosts. Finally, how the knowledge of cellular bacteriology together with advances in bacterial and human genome sequencing is being used in development of new anti-bacterial strategies will be discussed.

2. Medical Microbiology *(Director: Dr M Avison)*

This unit will give an account of several high-profile problems in medical microbiology, focussing on healthcare associated infections. Details of emerging and re-emerging bacterial and fungal infections will be presented, together with an overview of research into the strategies that can be used to track infections, identify infectious agents and develop novel ways of treating infections. One of the main reasons for the rise of infectious diseases, particularly in the hospital setting, is the development of multiple antimicrobial drug resistance by bacteria. Focussing on research within the School, key drug resistance mechanisms will be defined at a molecular level, and our attempts to combat resistance will be discussed.

Virology units

3. Medical Virology *(Director: Dr D Matthews)*

In this unit, we will comprehensively review the main viral diseases of man in terms of their natural history, biology, molecular biology, immunology, pathogenesis and epidemiology. The viruses in question will include HIV, hepatitis B and C viruses, herpesviruses, papillomaviruses, influenza viruses, measles viruses, rotaviruses and others. The unit will conclude with a review of the important and increasingly sophisticated area of diagnostic virology. It is difficult to over-estimate the global impact on public health of viruses. They are responsible for millions of deaths and countless episodes of ill health arising from chronic or acute infections each year worldwide. There are effective vaccines to combat some viral infections but in most cases good vaccines remain elusive. Indeed, for some viruses, it is not at all clear if vaccines can be developed in the foreseeable future given our present level of understanding.

4. Frontiers of Virology *(Director: Dr D Matthews)*

This unit will cover selected "cutting edge" issues in modern virology. Firstly, we will explore virus structures, the modes of virus entry into cells, intracellular trafficking of viruses and their exit from the infected cell. Our understanding of viruses is becomingly increasingly important in combating major new threats to public health e.g. HIV, swine flu, bioterrorism, etc. Consequently, we will cover a series of "hot" virology topics that are having a great impact on contemporary society. Emerging viruses, such as Marburg and Ebola viruses, along with arthropod-borne viruses will be discussed. Transmissible spongiform encephalopathies (TSE), including BSE and new variant CJD, will also be investigated as examples of emergent zoonotic infections. Some of the currently insoluble problems in viral vaccine design in relation to HIV, influenza, and herpesviruses will be considered. It is becoming increasingly apparent that the oceans contain a vast quantity and variety of viruses that have an impact on the earth's biogeochemical systems.

Cancer units

5. Developmental Genetics and Embryonal Cancers *(Director: Dr K Malik)*

This unit will consider molecules, mechanisms and pathways that are critical in regulating early developmental processes. By understanding this, the students will gain an appreciation of how defects and diversions of normal growth control can lead to developmental diseases. In particular, the course will elaborate on aberrations that contribute to carcinogenesis.

6. Cancer Mechanisms and Therapeutics *(Director: Prof. C Paraskeva)*

This unit covers cellular and molecular changes that result in common cancers such as breast and colon including genetics of colorectal (FAP and HNPCC) and breast cancer (BRCA1 and BRCA2); cell adhesion molecules in differentiation, invasion and metastasis; importance of tumour microenvironment in carcinogenesis. Regulation of the cell cycle by the tumour suppressor genes, TGFbeta, p53, and why loss of function represents the most common event in human cancer. Normal apoptosis pathways, deregulation of apoptotic signalling in carcinogenesis and its role in the development of drug resistance. About 20% of cancers are linked to viruses. Human viruses covered include EBV, HPV, Hepatitis B and C, Kaposi Sarcoma Herpes Virus. This topic will also include a brief review of the epidemiology of cancer and current approaches for both cancer prevention (NSAIDs, cancer vaccines) and the exploitation of targets, described above, for novel chemopreventive and therapeutic approaches.

Immunology units

7. Advanced Immunology *(Director: Dr A Pullen)*

This module is focussed on immunology currently at the cutting edge of research. The topic includes: Innate immunity, Antigen processing, Immune trafficking, Peripheral CD4 T cell differentiation, Signalling and signal transduction in T and B cells, CD8 T cell responses, Positive and negative selection during thymocyte development, Central and peripheral tolerance. The topic will include a session on flow cytometry, a research paper workshop and a data handling workshop.

8. Immunopathology and Applied Immunology *(Director: Dr A Pullen)*

Immune responses can have harmful direct effects and side effects. Selected examples of such pathological effects are covered including various autoimmune diseases, autoinflammatory diseases, allergy and the pathogenesis of asthma. Vaccination has been a success story for immunology, but there are many diseases, both microbial and conditions such as cancer and autoimmune diseases, where vaccines remain to be developed. Here the problems of evading the immune response and designing effective vaccines are covered. The topics discussed in this section include; mucosal immunity and vaccines, trends in paediatric vaccinology and immunity to tumours.

Stem cell units

9. Regenerative Medicine *(Director: Dr W Kafienah)*

Stem cells and regenerative medicine is a rapidly emerging area of biomedical research with enormous therapeutic potential. This unit aims to provide a thorough grounding in the biology of stem cells and regenerative medicine, with special reference to the molecular and genetic control of cell fate specification and differentiation. Students will be guided from the origins of this field through to its application (and potential applications) in treating human disease covering the latest tools and technologies available for study in this area. Covered subjects include (1) the basic cellular and molecular biology of adult and embryonic stem cells, (2) genomic and proteomic approaches in stem cell biology (3) concepts of tissue engineering, (4) the basic science and clinical application of stem cells in cardiac, skeletal and neural repair and regeneration and (5) stem cell immunology. The very latest breakthroughs and research themes will be communicated.

10. Haemopoietic Stem Cell Transplantation *(Director: Dr C Steward)*

The most tangible evidence of advances in genetic, protein and cellular sciences is seen in stem cell transplantation. From early attempts at bone marrow transplantation, this has broadened to include the use of stem cells mobilised by growth factors from the donor's marrow into their bloodstream, cord blood from placentae and now even combined cord blood transplants from several babies. Genetic advances have revolutionised the speed and accuracy of tissue typing, the assessment of engraftment and graft rejection, accurate quantitation of malignant cells and early detection of viral infections. Advances in antibody technology now allow the accurate selection of stem cells and of cells capable of fighting specific viral infections. A major area of current interest is exploiting stem cell plasticity for tissue replacement. This unit examines the biology of stem cells and the technology behind these advances, focussing particularly on how successful research in this School has been transferred from the laboratory to clinical application, bringing major benefits to clinical care.

Research skills unit

11. Research Skills *(Director: Dr J Spencer)*

Students will carry out a 16 week laboratory or literature/computer-based research project in an area of current interest in cellular and molecular medicine. The Introduction to the project dissertations will require a review of the relevant primary scientific literature. Students will be able to evaluate and discuss the key research papers underlying their project. Students doing laboratory projects will learn experimental skills in an active research laboratory and will learn to disseminate their results in a written dissertation and in an oral presentation and a viva. All students will learn to assess the scientific literature and will evaluate whether appropriate conclusions have been drawn. The data handling exam will assess the students' ability to read and interpret data, figures and tables presented in the scientific literature.

(x) The Level 6/H Research Project

The Research Project forms part of the Research Skills Unit (see above). Students do a “wet” project, in which they carry out work at the bench in Research Laboratories, or a “dry” project, which does not involve laboratory work.

The work involved in the Research Project is carried out during weeks 3-15 and a dissertation embodying the results is to be handed in by week 18. There is a *viva voce* on the project, in which the work is examined by the supervisor and an independent assessor. In addition, all students give an assessed talk on their project in teaching block 1.

(xi) Assessment of Programmes

For full current regulations on assessment and progression, including the rules used in degree classification see:
www.bristol.ac.uk/esu/assessment/codeonline.html.

(a) Levels 4/C and 5/I

In general, each of the Units is assessed independently. Assessment is by means of a written paper of 2 to 3 hours in the January assessment period (for teaching block 1) or Summer assessment period (for teaching block 2), normally contributing 75% of the marks, with the remaining 25% coming from assessments made during the year.

It should be noted that the rank order of Year 2 marks will be used to determine project allocation in the final year.

(b) Year in Industry

The work is presented as a dissertation. There is a viva voce on the project, in which the work is normally examined by two members of staff. Marks are awarded under a number of different headings; project talk, initiative and industry at the bench, technical ability, introduction, materials & methods, results & discussion, presentation and for defence of the work in the viva.

(c) Final Year

The project is presented as a dissertation. There is a *viva voce* on the project, in which the work is examined by the supervisor and another independent member of staff. Marks are awarded under a number of different headings. For "wet" projects these are; initiative & industry, technical ability at the bench, introduction, materials & methods, results & discussion, presentation of the dissertation and for defence of the work in the viva. For "dry" projects these are; initiative & industry, originality/independence, introduction, scope, detail, conclusions, presentation of the dissertation and for defence of the work in the viva. In addition, all students give an assessed talk on their project.

In the summer assessment period, students sit examinations in four Lecture Units, and in Data Handling. Subject to confirmation, these will be conducted as follows:

Each Lecture Unit will be examined by a 3-hour paper where students answer 3 essays from a choice of 6.

There will be a 3 hour data handling paper, where students will answer 2 from a wide choice of questions.

The weighting of components for **science students** in the Final Assessment will be:

				%
Research Skills Unit	Four Lecture Unit papers each	4 X 12.5	=	50.0
	Data Handling paper	6.2	=	6.2
	Project	18.8	=	18.8
	Year 2 Mark *	25.0	=	25.0
	Total weighted components			100.0

* The average of all courses taken in Year 2

For **intercalating medical, dental and veterinary students**, the second year marks do not count towards the final degree, so the weighting of components in the Final Assessment will be:

				%
Research Skills Unit	Four Lecture Unit papers each	4 X 16.7	=	66.7
	Data Handling paper	8.3	=	8.3
	Project	25.0	=	25.0
	Total weighted components			100.0

(d) Degree Classification

The University has a common policy to calculate the final programme mark and degree classification for its undergraduate modular programmes, the key points of which are provided below.

1. First year marks do not contribute to the calculation of the final programme mark and degree classification.

2. The marks from units taken in subsequent years of study do contribute to the final programme mark and degree classification, weighted by the volume of credit points, except where students are given exemption from units, due to accredited prior learning.

3. The following weighting is applied to the average year marks to calculate the final programme mark:

	1st year	**2nd year**	**3rd year**	**4th year**
Standard CMM programmes	0%	25%	75%	-
CMM programmes with study in industry	0%	15%	10%	75%
Intercalating medical, dental and veterinary students	0%	0%	100%	-

The honours degree classification will be awarded in relation to the final programme mark as follows:

First Class Honours	70 and above
Second Class Honours, First Division	60-69
Second Class Honours, Second Division	50-59
Third Class Honours	40-49
Fail	39 and under

UNLESS the final programme mark falls within the range of one of the classification boundaries, as follows:

2.1/1	equal to or more than 68 but less than 70
2.2/2.1	equal to or more than 58 but less than 60
3/2.2	equal to or more than 48 but less than 50
Fail/3	equal to or more than 38 but less than 40

If the final programme mark falls within the range of one of the classification boundaries, the higher degree classification will only be awarded if 50% or more of the individual weighted unit marks, which contribute to the degree classification, are achieved at the higher class, otherwise the lower class will be awarded. The full Regulations on degree classification can be found in the University's Regulations and Code of Practice for the Assessment, Progression and Award of a Qualification for Students on Taught Programmes:

www.bristol.ac.uk/esu/assessment/codeonline.html

D. OTHER INFORMATION

1. *PERSONAL DEVELOPMENT PLANNING*

Personal Development Planning (PDP) was introduced to encourage students to record and reflect on their academic and personal progress, and to plan ahead for their future professional development. Alongside the academic transcript, it forms a notional 'Progress File' of the student's achievement.

The primary objective for PDP is to improve the capacity of individuals to understand what and how they are learning, and to review, plan and take responsibility for their own learning, thus helping students:

- Become more effective, independent and confident self-directed learners
- Understand how they are learning and relate their learning to a wider context
- Improve their general skills for study and career management
- Articulate personal goals and evaluate progress towards their achievement
- Encourage a positive attitude to learning throughout life.

A downloadable guide for students on learning from experience, enhancing learning through reflection, skills development and goal setting to enhance their future employability can be obtained at: *www.bris.ac.uk/careers/pdp/.*

2. *POST-GRADUATE COURSES AND STUDENTSHIPS*

Many of you will wish to follow a career in your specialty. The next step for you may well be to do a Ph.D. in some branch of the subject, and many people will be able to advise you - **Dr Matthew Avison** has information on Ph.D. projects available in this School, and is also responsible for matching up candidates with appropriate funding. The general rule is that for funding by Research Councils you need at least an Upper Second Class degree. If you wish to study for a Ph.D. elsewhere, the first port of call could be one of number of websites designed for this purpose (e.g. *www.FindaPhD.com*). Posters about MSc and PhD places are displayed on the notice board in the corridor leading to G53. For advice on suitable projects and supervisors, you are also recommended to consult members of staff with interests close to the one in which you wish to do your Ph.D.

If you are interested in pursuing a M.Sc. degree you may wish to consult the website *www.FindaMasters.com*.

Also use the resources in the careers service to investigate this further or get feedback on Postgraduate applications. *www.bris.ac.uk/careers/postgrad/*.

3. *CAREERS*

The Careers Service (Tyndall Avenue (next to the Centre for Sport, Exercise & Health); Tel: 9288221 (external) and 88221 (internal)) is able to provide a comprehensive range of advice and information, and to put you in touch with potential employers. They are open: 10.00 - 16.45 Monday-Friday during teaching blocks. Staff from the careers service will have contact with Cellular and Molecular Medicine students in each year of their degree programme. You will learn about their services and start thinking about careers in general terms. You should be finalising your decisions near the start of your third year when interviews take place. You are strongly recommended to make use of their friendly and efficient service; **in particular, they have an extensive set of web pages on *www.bris.ac.uk/careers/* which you are encouraged to use**. Keep up to date with all that's going on by subscribing to the email 'Careers Bulletin' or look on

Facebook and Twitter: *www.bris.ac.uk/careers/stay-informed.asp* and follow the careers blog: *www.universityofbristolcareers.wordpress.com*.

Events & Workshops

The careers service organises workshops, panels & presentations where you can find out about different careers and meet employers, as well as careers fairs where you have the chance to meet with hundreds of employers at the same time. Employers and recent Bristol graduates also get involved in practice interviews and practical workshops on selling yourself effectively, networking & how to succeed at assessment centres.

Find out more and book your place here: *www.bris.ac.uk/careers/events*.

Work Experience & Internships

It is more essential than ever to get work experience whilst you are studying; check out vacancies on *www.bris.ac.uk/careers* and sign up to get targeted emails every time a job you're interested in gets posted.

Sessions run throughout the year about how to get an internship, see: *www.bris.ac.uk/careers/events*.
Find out about UoB internships at: *www.bris.ac.uk/careers/uobinterns/*.

Careers Network

Ask for advice and careers insight from more than 700 Bristol graduates and former research staff now studying, researching and working in different fields: *www.bris.ac.uk/careers/network*.

What do graduates from my course do?

Get some inspiration from Bristol graduates by having a look at what they went on to do 6 months after graduation: *www.bris.ac.uk/careers/grads/wdgd.asp* and read advice from recent graduates from your degree: *www.bris.ac.uk/careers/grads/dlhe/casestudies/index.asp*.

Bristol PLuS Awards

Over 1,200 students got involved in the Bristol PLuS Awards in 2011-2012 to get recognition for their commitment to professional and personal development through work experience, society involvement, sporting activity. To prove that you are more than just your degree, sign up today- endorsed by 30 graduate employers: *www.bris.ac.uk/careers/plusaward/index.asp*.

4. *CURRICULUM VITAE*

The quality of your CV may determine whether an application leads to interview and a job offer or to immediate rejection.

The Careers Service (Tyndall Avenue; *www.bris.ac.uk/careers/*) has a free booklet: *CVs and Covering Letters*, which includes several examples of CVs with differing targets.

Note that your Personal Tutor, Project Supervisor and/or the Director of Teaching will normally expect to provide you with a reference, but it is both wise and polite to speak to them before putting their name on a job application. It is helpful to provide a CV to anyone that you ask to write a reference for you. (See also under Academic Personal Tutors above; B.6.).

5. *KEEPING IN TOUCH AFTER GRADUATION*

The Careers Service will contact you six months after you have left the University to find out what you are doing. This is because the Government requires information about the destinations and employment of our graduates. This information is also

very useful for future applicants and students, and we would appreciate your prompt response.

In general, it is always a pleasure to see old friends: we put our graduates into this category. Please keep in contact: you will, we hope, have established close contact with a number of members of staff, such as your Personal Tutor, the Director of Teaching, your Project Supervisor, etc. and any of them will be pleased to hear from you at any time.

E. APPENDICES

1. *ACADEMIC STAFF: CONTACT DETAILS AND RESEARCH INTERESTS*

Phone numbers: For internal calls, omit 33.

BRI = Bristol Royal Infirmary, BEH = Bristol Eye Hospital, UHB EC = University Hospitals Bristol education centre

		Phone	Room	Email	Research interests
Avison, Dr M.B. (Senior Lecturer in Microbiology)		33 12036	D54	*Matthewb. Avison @bris.ac.uk*	Transcriptional control in bacteria.
Blair, Dr A. (Principal Clinical Scientist)		33 12066	C72	*allison.blair @bris.ac.uk*	Leukaemia stem cells.
Blocker, Dr A. (Reader in Microbiology)		33 12019	D39A	*Ariel.Blocker @bris.ac.uk*	Bacterial Pathogenesis; Mechanisms of protein targeting and secretion; Macromolecular structures.
Brown, Dr K.W. (Reader in Molecular Pathology)		33 12071	G57	*Keith.Brown @bris.ac.uk*	Molecular Genetics of childhood cancers.
Davidson, Dr A. (Senior Lecturer in Virology)		33 12024	E49	*Andrew. Davidson @bris.ac.uk*	Dengue virus and dengue vaccines.
Dick, Prof. A (Professor of Ophthalmology)		34 24854	BEH	*A.Dick @bris.ac.uk*	Immune mechanisms of autoimmune disorders of the eye.

		Phone	Room	Email	Research interests
Essafi, Dr A. (Lecturer in Cancer Biology)			G56		Molecular biology of embryogenesis and its relation to cancer.
Finn, Prof. A. (Professor of Paediatrics)		34 20172	UHB EC	*Adam.Finn @bris.ac.uk*	Respiratory infections in children.
Hill, Dr D.J. (Senior Lecturer in Microbiology)		33 12073	D52	*Darryl.J.Hill @bris.ac.uk*	Interactions of bacterial pathogens of the respiratory tract with the human host.
Hollander, Prof. A. (ARC Professor of Rheumatology & Tissue Engineering)		33 12403	G56	*A.Hollander @bris.ac.uk*	Stem cells and tissue engineering.
Kafienah, Dr W.Z. (Lecturer in Stem Cell Biology)		33 12089	G53A	*W.Z.Kafienah @bris.ac.uk*	Molecular regulation of somatic and embryonic stem cells, tissue engineering.
Kaidi, Dr A (Lecturer in Cancer Biology)		33 11499	G56	*ak0724 @bris.ac.uk*	The effect of chromatin structure on DNA repair.
Maggiani, Dr F. (Consultant Senior Lecturer in Pathology)		34 23195	BRI	*Francesca. Maggiani @bris.ac.uk*	Cancer biology.

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		Phone	Room	Email	Research interests
Malik, Dr K. (Reader in Epigenetics)		33 12078	G52	*K.T.A.Malik @bris.ac.uk*	Gene regulation in cancer.
Matthews, Dr D. (Senior Lecturer in Virology)		33 12058	E49	*D.A.Matthews @bris.ac.uk*	Adenoviruses and gene therapy.
Morgan, Dr D. (Reader in Immunology)		33 12021	E48	*D.J.Morgan @bris.ac.uk*	Anti-tumour $CD8^+$ T cell responses.
Nicholson, Dr. L.B. (Reader in Research)		33 12088	F44	*L.Nicholson @bris.ac.uk*	Organ specific autoimmune disease of the nervous system and the retina.
Paraskeva, Prof. C. (Professor of Experimental Oncology) **Head of School**		33 12072	G47	*C.Paraskeva @bris.ac.uk*	Cell and molecular biology of colorectal cancer.
Perriman, Dr A (Lecturer in Regenerative Medicine)			C52A	*Chawp @bris.ac.uk*	Artificial fluidisation of biomolecules.
Pullen, Dr A. **Director of Teaching, Senior Tutor**		33 12025	G54A	*A.M.Pullen @bris.ac.uk*	

		Phone	Room	Email	Research interests
Roberts, Prof. S. (Professor of Cancer Biology)		33 12062	G50	*Stefan.Roberts@bris.ac.uk*	Regulation of transcription in cancer.
Siddell, Prof. S. (Professor of Virology)		33 12067	E47	*Stuart.Siddell@bris.ac.uk*	Molecular biology and pathogenesis of RNA viruses.
Spencer, Dr J. (Lecturer in Microbial Pathogenesis)		33 12084	D52	*Jim.Spencer@bris.ac.uk*	Structure and function of metallo-β-lactamases.
Steward, Dr C. (Reader in Stem Cell Transplantation)		33 12086	UBH EC	*Colin.Steward@bris.ac.uk*	Immunotherapy and stem cell transplantation.
Williams, Prof. A.C. (Professor of Experimental Oncology)		33 12070	G54	*Ann.C.Williams@bris.ac.uk*	Regulation of cell survival in colonic epithelial cells.

		Phone	Room	*Email*	Research interests
Williams, Prof. N.A. (Professor of Immunology)		33 12064	G48	*Neil.A.Williams @bris.ac.uk*	Mucosal immunity, Basic immunobiology and vaccine delivery immunotherapy
Wraith, Prof. D.C. (Professor of Experimental Pathology)		33 12054	F55	*D.C.Wraith @bris.ac.uk*	T lymphocytes, autoimmune disease.
Wuelfing, Prof. C (Professor of Immunology)		33 12364	G51	*paxcw @bris.ac.uk*	T cell signalling.

2. *SAFETY IN LABORATORIES*

This is not intended to be a complete list of safety precautions but rather a brief guideline to help you avoid accidents and dangers to yourself and others. Further information will be given to you in your introductory talk, practical sheets and during the practical classes themselves.

YOU MUST WEAR ONE OF THE LABORATORY COATS SUPPLIED, and it must be done up properly. Hang it up after use.

You must always follow practical instructions carefully. WEAR GLOVES AND USE EYE PROTECTION whenever instructed to and at any other time you feel it is appropriate. You must always behave in a responsible manner in practical laboratories.

Much of the following is really just common-sense:

1. NEVER PUT PENS / PENCILS IN YOUR MOUTH.
2. Divide your work area so that you have an area to do the practical work in, and an area for books etc. The two must remain separate: never work over your books.
3. The commonest causes of accidents involve broken glass, scalpels, razors or other sharp objects. Such items must be disposed of in the special containers provided.
4. Eating, drinking, smoking or application of cosmetics in laboratories is absolutely forbidden. Coats, bags and cases must be placed in the lockers provided outside the laboratory.
5. Wash your hands thoroughly with soap before leaving the classroom. When using potentially pathogenic microorganisms or hazardous chemicals you should wash them more often.
6. Pipetting by mouth is absolutely forbidden - always use an automatic pipette or a pipette-filler.
7. All spills of microorganisms or toxic, corrosive or radioactive materials must be reported immediately. Copious irrigation of the affected area of skin or clothing is the best immediate treatment for spills of mineral acid or caustic alkalis. The same immediate treatment applies if the eyes or mouth have been affected, but in all cases, even where self-aid has been attempted, **the incident must be reported** in case further treatment is required.
8. Organic solvents must always be handled with care. Flammable materials must be kept away from naked flames or other sources of ignition. Organic solvents may only be evaporated in suitable fume-hoods and must be disposed of in appropriate containers and NOT DOWN THE SINK.
9. Equipment, such as centrifuges, represents a potential hazard: do not attempt to use such equipment without adequate instruction from a member of staff familiar with the instrument. It is your responsibility to use it in the correct manner.
10. Electrophoresis equipment also requires extreme caution since the voltages involved may be lethal: NEVER touch tanks with the power connected and ALWAYS ensure that protective covers are fitted.
11. Undergraduates must not handle known designated microbial pathogens, and should not attempt to isolate or culture bacteria or fungi from samples of soil or water without the express permission of a member of staff. Students should not enter or work in a laboratory in which such procedures are used without prior authorisation to do so. Such laboratories have biohazard signs on the doors.

12. Dispose of cultures and used slides into lysol unless otherwise instructed.
13. You should familiarise yourself with:
    (i) the fire precautions;
    (ii) the location of fire extinguishers and their use;
    (iii) the location of first aid equipment.
14. In the event of a fire alarm (long rings on the fire bells) leave the building and assemble outside as instructed.

You should note that you may have to visit laboratories to contact tutors, lecturers etc. When doing so you MUST:

(i) take note of safety notices on the doors;
(ii) keep out of areas designated by yellow lines on the floor;
(iii) be aware of potential hazards.

You should observe the following when carrying out microbiological work:

1. Keep your bench tidy, and do not allow writing material to come into contact with cultures and experimental apparatus. (See 2 above.)
2. Always put your initials and any other necessary data on the bottom of agar plates - not the lid.
3. Always observe sterile technique, both for reasons of your own safety and that of others and in order to ensure that your experimental results are reliable.

3. *SCHOOL TEACHING AND LEARNING STRATEGY*

(i) Aims and Objectives

AIM 1

To accept well motivated students with high academic potential from a variety of backgrounds and to provide degree programmes that further the growing contribution of graduates in the molecular biosciences to the health, prosperity and development of society.

Associated objectives

1.1 To stimulate students to develop their confidence, knowledge and skills by providing a high quality of teaching and learning.

1.2 To produce well informed and motivated graduates who have the skills and attitudes appropriate to their future aspirations and who are well placed to meet the recruitment needs of employers.

AIM 2

To provide degree programmes that maximise student choice and are in accord with the University policy of 'offering the best possible learning experience in an environment of internationally recognised research'.

Associated objectives

2.1 To allow students to benefit from a varied range of degree programmes. Each consists of a core component plus optional units within programmes and students have an opportunity to study in other Schools.

2.2 To enhance the learning experience by reflecting the research strengths of the School in the design, content and delivery of the programmes.

2.3 To stimulate students to boost their personal and intellectual development by providing training in a range of interpersonal and transferable skills which are appropriate to the changing needs of the employment market.

2.4 To motivate students to develop the skills and intellectual framework necessary for the acquisition and analysis of experimental data by providing practical laboratory experience.

2.5 To enable students to enhance their confidence and maturity by providing an opportunity for industrial experience.

2.6 As far as is practicable, to enable students to transfer between Honours Programmes if they so wish.

AIM 3

To be guided and informed by the University Regulations and Code of Practice for the Assessment and Progression of Students on Taught Programmes so as to deliver high quality teaching as a corporate effort.

Associated objectives

3.1 To enhance the learning process by identifying, encouraging and communicating good teaching practice and by providing staff with appraisal and recognition of teaching excellence in their career development.

3.2 To enhance the learning process by providing School committee structures for the effective organisation of teaching and learning with mechanisms for regular review and quality assurance.

3.3 To ensure that students are consulted and informed on all aspects of teaching, learning and assessment and to respond promptly to student feedback.

3.4 To ensure that the intended learning outcomes are achieved by designating individual members of staff who have special responsibilities for quality assurance, transferable skills, academic progress and pastoral support.

AIM 4

To ensure high completion rates by providing a friendly and responsive learning environment.

Associated objectives

4.1 To motivate students by providing the best possible learning resources, space for private study and social facilities, within budget limitations.

4.2 To encourage independent learning by ensuring that appropriate library and computing facilities including E-mail and the World-Wide Web are available to students.

4.3 To ensure that students are fully informed by providing them with full documentation on all aspects of teaching, learning and assessment.

4.4 To ensure that students have full support and guidance by providing each with an academic personal tutor.

4.5 To encourage feedback by communicating regularly with students and responding promptly to issues raised.

4.6 To encourage students to contribute to and benefit from the University community.

LEARNING OUTCOMES

Cancer Biology & Immunology (B131): knowledge of pathology at the level of the cell and of the molecular structures within it.

Cellular and Molecular Medicine (B130): knowledge of a range of topics across the breadth of cellular and molecular medicine topics offered by the School.

Medical Microbiology (C521): knowledge of Medical Microbiology, with particular emphasis on infection.

Pathology & Microbiology (BC15): knowledge of a range of topics in Pathology and Microbiology.

Virology & Immunology (C540): knowledge of viruses, with particular emphasis on animal viruses.

Programmes with Study in Industry: these programmes offer students the same learning outcomes as above, with the benefit of an additional year's research experience in a pharmaceutical company, biotech company or research institute, to prepare them for careers in research, industry, production, management and marketing.

(ii) Management of teaching

The overall responsibility for all aspects of the School's activities rests with the Head of School (Prof. C. Paraskeva). He has devolved the overall immediate responsibility for science teaching to the Director of Teaching (Dr Ann Pullen), who reports to the Teaching Committee. Each unit is managed on a day to day basis by a **Unit Director,** who liaises with the Director of Teaching. Unit Directors are required to convene a meeting at the end of their Units to discuss how the Unit has gone and to institute any

necessary action. The Unit Directors report to the School Teaching Committee. This, in turn, reports to the School Academic Staff Meeting.

Each year the School is required to compile an *Annual Programme Review*, which looks back and comments on how things have gone in the year. This Review is submitted to the Faculty and examined by the Faculty Quality Assurance Team, which is responsible for checking that proper procedures that adhere to the University's guidelines are followed, and for identifying and recommending best practice. The Team visits the School biennially.

(a) Role of the Teaching Committee

The Committee exists to provide a strategic overview for the planning and monitoring of all undergraduate and postgraduate teaching carried out by the School. This includes the formal units for BSc students and for those studying Medicine and Dentistry, the MSc in Transplantation & Transfusion Sciences, and the MSc in Biomedical Sciences Research as well as the informal teaching and assessment of postgraduate students registered for a PhD or MSc by research. The Committee meets on a regular basis (once a teaching block or more often if required) and receives information from a variety of sources including the Director of Teaching, Unit Directors, student questionnaires and the Staff-Student Liaison Committee. The minutes of the committee are available to all members of staff, and recommendations are brought to the attention of the Academic Staff Meeting.

Composition of the Teaching Committee

Chair: Director of Teaching (Dr Ann Pullen)

Head of School, Unit Directors, Chair of the SSLC, professional course element Directors, MSc in Transfusion and Transplantation Science Programme Director and Postgraduate Tutor.

(b) Documentation

Each unit must have Aims and specific learning Objectives.

AIMS. These describe what one is trying to do, why one is trying to do it and how it will be done. It consists of a general statement covering the purpose/importance of the unit and how it relates to other units and the programme overall.

OBJECTIVES. These define the intended **learning outcome**, that is, what a student is expected to know/achieve. Consequently, a student's knowledge of each objective is capable of being tested in the unit assessment procedures. This section also describes the **skills** likely to be achieved and the students' **attributes** on successful completion of the unit.

INFORMATION

Each student and all contributing teachers and tutors should be provided with an **information pack** containing:

- Aims
- Objectives
- Timetables
- Synopsis and reading list
- Description of the teaching methods
- Description of the assessment procedures
- Arrangements for the examinations

- Description of the tutorial system
- Information on transferable skills
- Details of educational resources (computing, library)
- An explanation of how students are made aware of their progress
- Any special arrangements (e.g. for students with disabilities).

4. *GUIDELINES FOR THE SCHOOL BOARD OF EXAMINERS*

(i) Membership of the Board of Examiners

The External Examiner, all Academic Staff in the School, including its Honorary Members in other local institutions who are engaged in teaching the Programmes, are appointed members.

The Chair of the Board is the Head of School.

(ii) The External Examiner

Appointment is made in accordance with current University Guidelines. The External Examiner can comment on, approve, or suggest amendments to all examination papers set within the Honours Schools. The External Examiner has the right to see any examination script or other relevant material, but is routinely sent only scripts and dissertations relating to Level 6/H candidates.

The External Examiner is made aware of the details of the Honours Programmes by the Director of Teaching on appointment, and is consulted about alterations in examination procedures.

The External Examiner for 2013/14 is Professor Ian Jones, School of Biological Sciences, University of Reading.

(iii) Examination papers

Examination questions are set by the specialist members of the Board of Examiners according to the current practice, which is advised to the candidates. Unit Directors arrange the questions and compose the Papers. The papers are then finally formatted by the Director of Teaching and sent for scrutiny by the External Examiner. After consideration of any adjustment to the papers suggested by the External Examiner, the final drafts of the papers are prepared and sent to the University Examinations Office.

(iv) Anonymity of marking

This is conducted in accordance with current University Policy.

(v) Marking & assessment

Examination questions are normally marked by the Examiner who set them, using the University marking criteria. Level 6/H questions are, whenever possible, marked by two Examiners, who return an averaged or agreed mark.

The Level 6/H Research Project is always assessed by the Supervisor and another Assessor. The Supervisor gives marks for “Initiative and Industry”, and “Technical Ability” (each contributing 5% of the project mark) and the two examiners give marks for “Abstract” (5%), “Introduction” (30%), “Materials & Methods” (5%), “Results and Discussion” (25%), and “Presentation” (10%); they also conduct a short *viva voce* on the project for which a mark is given (10%). In the case of “dry” projects, the marks are given for “Initiative and Industry”, “Originality / Independence of Approach”, “Abstract” (all 5%), “Introduction” (15%), “Scope” (10%), “Detail” (15%), “Conclusions / Analysis” (15%), “Presentation” (15%), “Viva” (10%). In addition, all students give a talk on their projects in the teaching block 1, which contributes 5% of the project mark.

Year in Industry projects have a similar marking categories to “wet” research projects. The industrial supervisor gives marks for “Initiative and Industry” and

"Technical Ability". The dissertation is marked by two members of the School exam board, who also conduct the project viva.

In the event of disagreement about project marks, a third examiner is used and the external examiner may be consulted to moderate the final mark.

(vi) The Examiners' Meetings

Deliberations and decisions of the Board are minuted. The meeting considers the Level 4/C and 5/I lists, and decides on the final Class list.

(vii) Criteria for award of credit points

Credit points will be awarded for each Unit provided that a student:

(a) Attends all designated laboratory classes (except for good cause);

(b) Completes prescribed assessment exercises;

(c) Hands-in work for assessment, as prescribed;

(d) Attends tutorials, if prescribed;

(e) Attains an overall unit mark of at least 40% (or 40% in a supplementary or resit exam if prescribed).

(viii) Levels 4/C and 5/I

Mark lists for the various units are issued by candidate number only, in accordance with the University's current policy. The chairman then invites the appropriate Directors to take the meeting through each unit and candidates who merit special consideration for either commendation or failure are highlighted. Mitigating circumstances are taken into account (see (x) below) in determining whether a mark below 35 should be raised to 35, or a mark below 40 to 40. With this exception, marks presented are not normally adjusted.

(ix) Level 6/H

The University has a common policy to calculate the final programme mark and degree classification for its undergraduate modular programmes, the key points of which are provided below.

1. First year marks do not contribute to the calculation of the final programme mark and degree classification.

2. The marks from units taken in subsequent years of study do contribute to the final programme mark and degree classification, weighted by the volume of credit points, except where students are given exemption from units, due to accredited prior learning.

3. The following weighting is applied to the average year marks to calculate the final programme mark:

	1st year	**2nd year**	**3rd year**	**4th year**
Standard CMM programmes	0%	25%	75%	-
CMM programmes with study in industry	0%	15%	10%	75%
Intercalating medical, dental and veterinary students	0%	0%	100%	-

The honours degree classification will be awarded in relation to the final programme mark as follows:

First Class Honours	70 and above
Second Class Honours, First Division	60-69
Second Class Honours, Second Division	50-59
Third Class Honours	40-49
Fail	39 and under

UNLESS the final programme mark falls within the range of one of the classification boundaries, as follows:

2.1/1	equal to or more than 68 but less than 70
2.2/2.1	equal to or more than 58 but less than 60
3/2.2	equal to or more than 48 but less than 50
Fail/3	equal to or more than 38 but less than 40

If the final programme mark falls within the range of one of the classification boundaries, the higher degree classification will only be awarded if 50% or more of the individual weighted unit marks, which contribute to the degree classification, are achieved at the higher class, otherwise the lower class will be awarded. The full Regulations on degree classification can be found in the University's Regulations and Code of Practice for the Assessment, Progression and Award of a Qualification for Students on Taught Programmes:
www.bristol.ac.uk/esu/assessment/codeonline.html.

(x) Special circumstances

Certificated instances of illness or other mitigating circumstances that may have affected performance in examinations or assessments are considered prior to the Exam Boards by a Faculty Special Circumstances Committee. This decides on the potential severity that the circumstances might have had on students' performance. This is reported as having no effect, a minor, moderate or severe effect. The resulting list is made available to the Board of Examiners and is taken into account when awarding grades, "failures" or Credit Points at Levels 4/C and 5/I, and in deciding the Final Degree Classification in the Finals.

If there is evidence that a mark, which is likely to have been affected by the extenuating circumstance, would have been better in the absence of the circumstance, the Faculty Board of Examiners shall take such decision, in respect of the student, as is fair and reasonable in the circumstances.

(xi) Report of the External Examiner

After the main business of the Examiners' Meeting has been concluded, the External Examiner makes an oral report to the meeting on his/her impressions of the quality both of the candidates and of the course. Written reports are also submitted in accordance with the University's current Policy.

Students can obtain copies of external examiners' reports should they wish to do so. Copies are available from the Education Support Unit on request (*exexadmin@bris.ac.uk*).

(xii) Final meeting of the Honours Schools

Soon after the Examiners' Meeting, the Academic Staff meet to consider the following:

(a) Recommendations to be made to the Faculty Board of Undergraduate Studies in the case of students who have failed examinations and in the case of those who have excelled;

(b) The award of prizes;

(c) Consideration of the External Examiner's oral reports, and to decide any necessary action.

(xiii) Publication / divulging of marks

In general, students are allowed to see all the marks that the Examiners' Board has seen. Level 4/C and Level 5/I exam marks are published on "Blackboard" by students' candidate number. The final Class list (provisional) is posted by students' candidate number on the School notice boards on G floor after the Exam Board. Marks are also provided to final year students individually upon request.

5. *STUDY SKILLS*

Cellular and Molecular Medicine degree programmes: Study Skills Matrix

The following table shows the opportunities that will be available for you to develop subject specific study skills within the mandatory units within the Cellular and Molecular Medicine programmes. Additional opportunities may also arise on the optional unit you take outside the School in Year 2.

	Year 1	**Year 2**	**Year 3**
Experimental skills	CMM and Biochemistry practical sessions	CMM and Molecular Genetics practical sessions Research skills training in BREES	Practical project Data Handling sessions
Dissemination of experimental observations	Practical write-ups e.g. Lac operon	Molecular Genetics practical write-ups Presentation of data and scientific writing training in BREES	Project dissertation Project talk and *viva voce*
Assessment of scientific communications	Reviewing information for tutorial talks, MAD poster presentation and Biochemistry leaflet project	Précis for press release in BREES Preparation for essay writing and oral presentations Library training	Reviewing scientific literature for project and talks Additional reading for lectures Data Handling sessions Attendance at research seminars, followed by question and answer sessions
Team work and interpersonal skills	MAD poster presentation Biochemistry leaflet project Practical work Effective participation in tutorials	CMM and Molecular Genetics practical work Effective participation in tutorials Team exercises in BREES unit: Short-listing and interview panel, Develop business plan and pitch	Working in research labs Working in study groups to support learning
Research and managing knowledge	Library introductory session Extra reading from text books and web Researching information for tutorial talks Leaflet project	Extra reading from text books, reviews and the web Research for essays and oral presentations	Reviewing scientific literature for project and talks Use of End Note for project dissertation Additional reading for lectures
Written Communication	Tutorial essays Practical write up and poster preparation Session on essay writing Session on plagiarism and how to avoid it	Assessed essays in CMM and Molecular Genetics Grant proposal and business plan, writing for the public - press release, CV and cover letter in BREES	Session on how to write your project dissertation and how to avoid plagiarism Project dissertation Session on essay writing Practice exam essay
Oral Communication	Tutorial presentations, Informal meetings with personal tutor and Bioethics debates session in Biochemistry	Tutorial presentations in CMM units Mock interview sessions in BREES Business plan pitches in BREES	Communication with project supervisor and/or lab group Project talk and *viva voce*
Project planning and	MAD poster	Powerpoint presentations for tutorials	Planning and design of experiments for the

design	Powerpoint presentations for tutorials Biochemistry leaflet project	Mock grant proposal, CV, Business plan exercise in BREES	practical project Inclusion of future experiments in the project discussion
e-skills	eBiolabs pre- and post-lab work for practicals Use of Blackboard Powerpoint presentations for tutorials Leaflet presentation exercise	eBiolabs pre- and post-lab work INF and Molecular Genetics Bioinformatics practical sessions On-line statistics exercises in BREES Database searching for information gathering	Information retrieval for projects Powerpoint presentation for project talk and *viva voce* Word processing skills for project dissertation Stats packages, figure drawing and use of EndNote Database searching for information gathering
Numeracy	Numerical problems for tutorials Calculations in practicals, practice in eBiolabs Calculation revision sessions in Biochemistry	Molecular Genetics Data Handling questions Calculations in practicals and in eBiolabs Introduction to Statistics in BREES: Descriptive stats Hypothesis testing Correlation and regression	Data Handling practice questions Numerical work in practical project Statistical analysis of data Constructing figures and tables of data
Problem solving	CMM and Biochemistry practical sessions Biochemistry tutorial questions	CMM and Molecular Genetics practical sessions Tutorial questions CMP and Molecular Genetics data handling questions	Project work Data Handling practice questions
Reflection and self-assessment	Consider feedback on all assessed work Results and feedback from mid-unit assessments Reflection and personal development planning Discussions with personal tutor	Reflect on feedback on all assessed work Results and feedback from mid-unit assessments Reflection and personal development planning Discussions with personal tutor	Consider feedback on draft Introduction and Results and Discussion or Analysis and Conclusion sections of the project dissertation Reflect on performance in Data Handling practice questions and practice essay Discussions with personal tutor
Time management	Working to deadlines, managing workloads, regular attendance at lectures and mandatory teaching including practicals and tutorials.		

If you elect to transfer to a programme with a year of Study in Industry between the second and final year, your research placement will give you opportunities to develop further most of these skills. Exact study skills used will vary depending on the placement.
All placements will involve the production of a project dissertation and a *viva voce* upon return to Bristol in the final year.

6. *STUDENT COMPLAINTS PROCEDURE*

If a student has a complaint about any aspect of University life, it should be raised with an appropriate person at the earliest opportunity. Students are recommended to approach first someone from among those listed 1 in the table below, then someone from among those listed 2 and so on. Students should endeavour to deal with their complaint in the first instance at the lowest level possible, and Council should be approached only after all other avenues have been exhausted.

Full details of the student complaints procedures can be found at:
www.bristol.ac.uk/secretary/studentrulesregs/complaints.html

Person to whom approach may be made	***Type of Complaint***		
	Academic	**Accommodation**	**Other**
Personal Tutor	1	2	1
Supervisor	1		1
Tutor	1		
Head of School	2		
Faculty Education Director	3		
Dean of Faculty	4		
Sabbatical Officers	2	2	2
Students' Union Student Adviser	3	3	2
Student representatives	2		2
International Students Advisers (international students only)	2	2	2
Chaplain	3	3	3
Warden (of hall of residence)		1	
Senior Resident (of student house)		1	
Accommodation Office		2	
Faculty Officers			3
Director of Student Services			4
Other senior administrative officer			4

Revised version approved by Council 5 July 2002. Last amended July 2010.

7. *NOTES ON SCIENTIFIC WRITING*

(i) Title

Make certain that you understand the scope of the topic, what to include and what to omit. If you are in any doubt, consult the staff member who set the topic.

(ii) Aims and Organisation

You should aim to present a clear and up to date account of knowledge and ideas about the topic. You must not exceed the specified word limit and marks may even be taken off for excessive length. A concise and well-written essay is preferable to a long one that is poorly written. The use of headings and pictures will help you to focus on the relevant points.

In writing your essay, you are being asked to demonstrate that you are capable of searching the literature, extracting the relevant information and integrating it into your own review of the topic. In Levels 4/C and 5/I, textbooks are likely to be useful and will provide background information. You can cite these as references using the format set out below. However, sometimes in Year 2 and usually in Year 3, the information in textbooks is not specific enough or does not have sufficient depth or is not right up to date. Often a good start can be achieved by finding recent reviews in publications such *Microbiological Reviews, Trends in Biochemistry, Genetics, Immunology, Microbiology etc*, *the Annual Reviews of Immunology, Microbiology, Biochemistry etc.* For specific details of key work and for the most recent references you will need to consult the original literature. This can be found by searching a variety of databases on the Internet. For access to databases such as PubMed or Web of Science see: *www.bris.ac.uk/is/library/metalib/*.

If you type in one or more keywords, or an author's name and initials, the titles of papers will appear on the screen. You can then access the abstracts of any paper you choose. Furthermore, you can usually gain access to the full text of a paper through the University of Bristol electronic journals site that can be found at: *www.bristol.ac.uk/library/resources/eresources/ejournals/.*

Increasingly, useful background information may be found on the Internet. However, take care in using material that has not been peer reviewed and may be the personal opinion of one individual only. You should confine yourself to university, research institute, or government web sites, as the information on these sites is more likely to be reliable. You must always cite the websites you have visited in the reference list at the end of your essay.

Make an early start collecting material; do not leave it all to the last week when you may not be able to locate important references. Try to collect and integrate your material under appropriate headings rather than reading one paper, writing a paragraph about it, reading another, writing on that, and so on. The latter approach will make your essay very disorganised and it will lack any flow or cohesion.

Your essay should be submitted in the form prescribed. This may be as a hand-written document (the intention being to provide exam practice), or as a single, word-processed and printed document (in the latter case use 12-point Times New Roman or similar font and double spacing). You should aim to have no grammatical, spelling or typographical errors. Word processing software can help you eliminate errors of this type but there is no substitute for careful proof reading.

(iii) Plagiarism

Rules & Regulations for Students say that:

3.1 Work must be that of the student

Any thesis, dissertation, essay, or other course work must be the student's own work and must not contain plagiarised material. Any instance of plagiarism in such coursework will be treated as an offence under these regulations.

3.2 Plagiarism

Plagiarism is the unacknowledged inclusion in a student's work of material derived from the published or unpublished work of another. This constitutes plagiarism whether it is intentional or unintentional. "Work" includes internet sources as well as printed material.

According to the Oxford English Dictionary, plagiarism is "The action or practice of plagiarizing; the wrongful appropriation or purloining, and publication as one's own, of the ideas, or the expression of the ideas (literary, artistic, musical, mechanical, etc.) of another."

Put simply, you must write your essay in your own words and construct your own diagrams. Students found not to have complied with these requirements may receive no marks for the essay and could face severe disciplinary action from the University (see Rules & Regulations for Students).

The mental exercises of writing the essay in your own words and constructing your own diagrams are the most effective ways of coming to grips with complex issues and remembering them for the future i.e. exams! If you wish to quote someone else's work, you must make this clear by using quotation marks ("....."), but this device should be used very sparingly and is almost never essential in essays on scientific issues.

(iv) Citing of references

NB Students are not expected to reference their work in exams.

An important part of scientific writing is the correct use and citation of references. There are two main methods of citation in common use. One identifies each reference by a number in the text and then lists them in alphabetical or numerical order at the end of the article. The other identifies them by the authors' names and lists them alphabetically at the end.

Students in Years 1 and 2 are not required to stick rigidly to a formal referencing system as set out below for the final year. However, you must clearly indicate the sources of the information you have used for your essay. In other words, the reader should be able to access the same information, in the same way that you have, from the reference you have provided. It is likely here that you will only need to cite textbook chapters and appropriate web sites. (A title, author(s) and year should be given along with any web site address.) In fact you may find it easier to follow the format set out below for Level 6/H.

In the final year it is recommended that you use either the numbering system in use in the *Journal of Immunology* or the system employed in the *Journal of General Virology*, in which the authors' names and the year of publication are present in the text. The latter clearly uses more words and so may be problematic if your dissertation is close to the strict word limit.

Following the Journal of Immunology system, references in the text should be numbered thus:
B cells are tolerogenic rather than immunogenic (1-4).

The publications you refer to should be listed in number order in the References section at the end of the dissertation.

References must include all the authors, the year, the title of the paper, the journal, the volume, as well as both initial and final page numbers.

Examples of references to journal acticles:

1. Fuchs, E. J., P. Matzinger. 1992. B cells turn off virgin but not memory T cells. *Science* 258: 1156-1159.
2. Eynon, E. E., D. C. Parker. 1992. Small B cells as antigen-presenting cells in the induction of tolerance to soluble protein antigens. *J. Exp. Med.* 175: 131-138.
3. Fillatreau, S., C. H. Sweenie, M. J. McGeachy, D. Gray, S. M. Anderton. 2002. B cells regulate autoimmunity by provision of IL-10. *Nat. Immunol.* 3: 944-950.
4. Raimondi, G., I. Zanoni, S. Citterio, P. Ricciardi-Castagnoli, F. Granucci. 2006. Induction of peripheral T cell tolerance by antigen-presenting B cells. I. Relevance of antigen presentation persistence. *J. Immunol.* 176: 4012-4020.

Alternatively, for the system in use in the *Journal of General Virology* references in the text should be cited thus:

(Lechner, 1989) For one author

(Harley & Reynolds, 1987) For two authors

(Mitchison *et al*., 1991) For more than two authors

Mitchison *et al*. (1991) reported that.....

References to papers by the same author(s) in the same year should be distinguished in the text and in the reference list by the letters a, b, etc. (e.g. 1995a, or 1995a, b).

The publications you refer to should be listed alphabetically at the end by first author. Publications with three or more authors should be listed in chronological order after any other papers by the first author. References must include the title of the paper as well as both initial and final page numbers. Titles of journals must be given in full.

References to books should include year of publication, title, edition, editor(s) (if any), place of publication and publisher, in that order. When the reference is to a particular part of a book, the inclusive page numbers and, if appropriate, the title of the article or chapter must be given.

Example of a journal reference:

McMinn, P. C., Marshall, I. D. & Dalgarno, L. (1995). Neurovirulence and neuroinvasiveness of Murray Valley encephalitis virus mutants selected by passage in a monkey kidney cell line. *Journal of General Virology* **76**, 865-872.

Example of a book chapter reference:

Schoub, B. D. & Blackburn, N. K. (1995). Flaviviruses. *In Principles and Practice of Clinical Virology*, 3rd edn, pp. 485-515. Edited by A. J. Zuckerman, J. E. Banatvala & J. R. Pattison. Chichester: John Wiley & Sons.

Every reference cited in the text must be listed in the reference list and vice versa.

Problems may arise when deciding how to quote an original paper by, say, Morgan *et al*., 1998 that has been quoted in a review by, say Davidson in 2002. Strictly speaking you should read the Morgan paper before you cite it; otherwise you

should list it as “Morgan (full details) quoted by Davidson (full details)”. It would be unrealistic to read every single paper cited by a reviewer, especially those related only peripherally to your main theme. In those instances you can assume that Davidson has correctly assessed the significance of Morgan’s work for you.

(v) Marking

Essays will be assessed using the criteria described below. However this is not a guide to the marks allocated to each section and the criteria do not carry equal weight with regard to the marks given. See Appendix 9 (page 78) for the marking scheme used in the School.

Introduction: How well do you state your objectives and introduce your topic?

Structure: How effectively is your material presented, organised and logically ordered?

Content: Does the content of your essay indicate that you have analysed the topic in a detailed and critical manner, and adequately supported your conclusions through reference to relevant literature?

Understanding: Does your essay indicate originality, independence of thought and a clear understanding of the topic?

Relevance: How relevant is your material to the stated objectives?

Research: Does your essay indicate evidence of adequate reading of the current literature in its planning, preparation and writing?

Expression: Is the quality of your expression clear? Is your grammar, punctuation and spelling correct?

Referencing: Have you adequately referenced and documented your essay by correct use of citations?

Diagrams: You must construct your own diagrams and not simply download them from the Internet. Are the diagrams included in your essay relevant to your topic and reference made to them in the text? Do they have an appropriate legend? Are original sources cited?

Presentation: Is the physical presentation of your essay as prescribed?

8. *PROGRAMME SPECIFICATIONS*

University of BRISTOL

PROGRAMME SPECIFICATION

UNDERGRADUATE SINGLE SUBJECT

1.	Programme Title	BSc in Cellular & Molecular Medicine
2.	UCAS Code (JACS code)	B130
3.	Final Award	Degree of B.Sc.
4.	Programme Director	Dr. Ann M Pullen
5.	Department/s	School of Cellular and Molecular Medicine
6	Faculty	Medical and Veterinary Sciences
7.	Awarding Institution/Body	University of Bristol
8.	Teaching Institution	University of Bristol
9.	Programme Accredited by:	Not applicable
10.	Relevant QAA Subject Benchmark Group(s)	Molecular Biosciences
11.	Modes of study eg: FT/PT	FT
12.	Programme Length Normal length of registration for a) Full Time b) Part-Time	a) 3 years b) not available
13.	Date PS written or revised	Revised 12/01/10, 26/01/12, 28/01/13

14.	Educational Aims of the Programme
	The aim of this programme is to produce graduates of high calibre who will know their subject in depth and have well-developed critical skills, and who will be well placed to meet the recruitment needs of employers. They will have selected four level 6/H 20 cp units from those offered by the School of Cellular and Molecular Medicine: Advanced Immunology, Immunopathology and Applied Immunology, Regenerative Medicine, Stem Cell Transplantation, Developmental Genetics and Embryonal Cancers, Cancer Mechanisms and Therapeutics, Medical Microbiology, Molecular & Cellular Bacteriology, Medical Virology and Frontiers in Virology (excluding combinations that lead to other programmes). It is further intended that graduates will have a range of transferable skills appropriate to the changing needs of the employment market in the future. Students will learn how to assimilate knowledge, to manage their time effectively, and to communicate scientific material in both oral and written modes by presentation of a dissertation, oral reports, and essay-type examination answers. In the 40 cp Research Skills unit they will learn good scientific method and laboratory skills, and how to analyse and interpret scientific data correctly: this will be achieved principally through their project work that is laboratory or literature based.

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the course handbook or on-line at http://www.bris.ac.uk. The accuracy of the information contained in this document is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

PROGRAMME OUTCOMES

15. This programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas:	***16. Teaching, learning and assessment strategies that show how learning outcomes are achieved and demonstrated.***
A. Knowledge and Understanding	
16 Knowledge and Understanding of: 1. In Year 1, introductory microbiology, microbes & disease, normal & tumour cells, pathological responses of (mammalian) cells, and basic biochemistry. 2. In Year 2, principles of infection & immunity, cellular & molecular pathology, recombinant DNA technology and gene expression & rearrangement. 3. In Year 3 advanced aspects of cellular and molecular medicine: four 4-week lecture units chosen from developmental genetics & embryonial cancers, cancer mechanisms and therapeutics, advanced immunology, immunopathology & applied immunology, stem cell transplantation, regenerative medicine, molecular & cellular bacteriology, medical microbiology, frontiers of virology, medical virology. Among the topics for study are genetic analysis of human disease, cell cycle control, genetics of cancers, stem cell transplantation, regenerative medicine, innate immunity, antigen processing, T-cell activation and differentiation, immunology of autoimmune diseases including diabetes and multiple sclerosis, immunity to infections and to tumours, vaccines, the use of antimicrobial agents, the basis and epidemiology of antibiotic resistance, molecular mechanisms for sensing and response to the environment by bacteria, microbial pathogenicity, the molecular and cellular basis of virus – host cell interactions, virus replication, and viral pathogenesis including viruses such as HIV, SARS and "bird" flu as well as Prion diseases.	**Learning/teaching methods and strategies:** Plenary *lectures* are the principal mode of imparting information. These are complemented by *laboratory classes* in which students learn experimental skills and how to handle materials safely. In Years 1 and 2 most laboratory classes are didactic: students gain experience of techniques of relevance to the advanced work in their third year. In Year 3 students undertake a *research project* on which they write a dissertation. Students also learn through *tutorials*, small group student-centred teaching allowing ready interaction between the teacher and the individual student. Students are encouraged to undertake independent *reading* throughout, mainly basic texts in the early stages and research papers later on. **Types/methods of Assessment:** Students are formatively and summatively assessed by tests within individual units, marked work in laboratory classes, and the preparation of handouts, essays and problem-solving exercises in tutorials. They are assessed summatively by unit assessments and conventional end-of-year examinations. The final year research project dissertation is assessed by two examiners.

<table>
<tr><th colspan="2">B. Intellectual Skills /Attributes</th></tr>
<tr><td rowspan="2">17 Able to:
1. reason;
2. analyse and interpret data;
3. identify and solve problems;
4. assemble concepts using information from more than one source;
5. exercise independence of mind;
6. form and defend scientific judgements.</td><td>Learning/teaching methods and strategies:
Intellectual skills are developed through the teaching and learning programme outlined above. 1 is acquired principally through discussion in tutorials and interaction with teachers in these and in laboratory classes; 2 & 3 in laboratory classes; 4 in essay writing; 5 & 6 particularly in level H/6 project work and in spoken presentations. These are centred at level H/6 on cellular and molecular medicine although in the earlier years we offer a more broadly-based curriculum.</td></tr>
<tr><td>Types/methods of Assessment:
All our assessment methods seek to test the acquisition of these skills wherever possible. End-of-year examinations address 1 in particular; 2 & 3 are addressed in laboratory class assessments and a dedicated paper in level H/6 is specifically concerned with 2. A mature display of skills 4, 5 and 6 is important for the award of class 1 and 2.1 Honours.</td></tr>
<tr><th colspan="2">C. Other Skills /Attributes (Practical/Professional/Transferable)</th></tr>
</table>

18 Able to: 1. communicate in writing; 2. communicate orally; 3. be self-reliant and organise their time effectively; 4. take appropriate decisions when needed; 5. work as a group member and assess the importance of the ideas of others; 6. use support services such as the library effectively; 7. display an appropriate level of numeracy; 8. display an appropriate level of IT skill; 9. plan, execute and interpret the results of experimental work; 10. manage a research project.	**Learning/teaching methods and strategies:** Some of these skills are acquired as a result of critical appraisal by staff and learning/teaching strategies are hence closely tied to assessment (below). More specifically, there is essay-writing guidance (1) and students have to organise themselves and their time in laboratory work and in meeting deadlines (3,4,5); oral presentations increase confidence in 2. Laboratory work and tutorial guidance instils 7 and university services supply 6 & 8. 9 & 10 are central to project work for all students, at level H/6. **Types/methods of Assessment:** Assessed essays, end-of-year examinations, laboratory records and project write-ups (1); practice in essay writing is given from Year 1 and develops in the later years. Final examinations interviews and oral presentations test (2); essays, laboratory records and projects test (3,4,5,6,7) – most laboratory work calls for collaboration with one or more fellow-students and, in the later years, with technical staff. Level H/6 projects crucially test (9,10). Essays can involve experience of word processing, IT data retrieval and image scanning (8).

17. Intellectual Development Please provide a statement of expectations from the students at each level of the programme as it/they develop year on year.	
Level C/4 - Certificate	By the end of their studies at level C/4, students are expected to be able to use information acquired from textbooks and in lectures, practical classes and tutorials to demonstrate a sound knowledge of the fundamental principles of some of the core aspects of Cellular and Molecular Medicine, Pathology, Microbiology, Biochemistry and Molecular Biology and a level of competence in the relevant skills. It is expected that students should be able to relate this basic knowledge to a more detailed or advanced understanding of the subject later in the programme.
Level I/5 - Intermediate	At level I/5 students are expected to be able to demonstrate that they have expanded the range and depth of their knowledge of Cellular and Molecular Medicine, Pathology, Microbiology and Molecular Genetics in selected areas. They should also have developed a higher and broader level of competence in the relevant skills and practical techniques. They are expected to be developing a capacity for self-directed learning.
Level H/6 - Higher	At level H/6 students are expected to expand the breadth and depth of their knowledge of Cellular and Molecular Medicine through their study of four specialist lecture units from those offered in Cancer Biology, Immunology, Virology and Microbiology, Stem Cell Biology and Regenerative Medicine and through their practical or literary research projects in the research skills unit. At this level students are expected to be able to demonstrate their capacity for self-directed study using the skills acquired and developed at levels C/4 and I/5, applying knowledge gained through formal teaching to new and as yet unexplored systems. They should also be able to keep abreast of new and forthcoming developments in Cellular and Molecular Medicine and in related areas of biomedical science.
Level M - Masters	

18. Programme Structure by Year/Level and Unit

Please use this section to describe any particular aspects of the programme that may not be clear from the structure. Please make sure you indicate in the Progression Requirements column the Unit pass marks required for a student to progress (and the mark that constitutes a fail), for each year of study.

	Level	Unit Code	Unit Title	Credit Points	Mandatory (M) Optional (O) or Open	Progression / Award Requirements
Stage 1	C/4	PANM 12041	Introduction to Microbiology	20	M	*Unit Pass mark: 40%* *Minimum credit points for progress to next stage of programme: 120*
		PANM 12042	Microbes & Disease	20	M	
		PANM 12051	Normal & Tumour Cells	20	M	
		PANM 12052	Pathological Responses of Cells	20	M	
		BIOC 10100	Biochemistry IG	40	M	
Level C		**Certificate of Higher Education**		**120**		
Stage 2	I/5	PANM 22041	Infection & Immunity	20	M	*Unit pass mark: 40%* *Minimum credit points for progress to next stage of programme: 240*
		PANM 22042	Cellular & Molecular Pathology	20	M	
		MOLG 22100	Recombinant DNA Technology	20	M	
		MOLG 22200	Gene Expression and Rearrangement	20	M	
		FMVS 20001	Biomedical Research, Employability and Enterprise Skills	20	M	
			Free choice	20	O	
Level I		**19 Diploma of Higher Education**		**240**		

Stage 3	H/6	PANM33001	Advanced Immunology	20	O	*Unit pass mark: 40%* *Programme pass mark:* 360 class 1 70% class 2.1 60% class 2.2 50% class 3 40%
		PANM33002	Immunopathology and Applied Immunology	20	O	
		PANM33003	Developmental Genetics and Embryonal Cancers	20	O	
		PANM33004	Cancer Mechanisms and Therapeutics	20	O	
		PANM33005	Regenerative Medicine	20	O	
		PANM33006	Haematopoietic Stem Cell Transplantation	20	O	
		PANM33007	Molecular and Cellular Bacteriology	20	O	
		PANM33008	Medical Microbiology	20	O	
		PANM33009	Medical Virology	20	O	
		PANM33010	Frontiers of Virology	20	O	
		PANM33011	Research Skills	40	O	
Level H		**BSc in Cellular & Molecular Medicine**		**360**		

Please see footnotes for information on Stages and Levels.
**If this is a classified award please provide information that shows how the pass mark maps on to the degree classes. If a postgraduate award indicate the level of pass mark required for a Commendation.*

19. Admission requirements:
A Levels: A typical offer would be AAB, with a contextual offer of ABB. Chemistry and at least one other science are required.

There are comparable requirements for those with other backgrounds such as Scottish Highers and Advanced Highers, Welsh Baccalaureate, European Baccalaureate, International Baccalaureate or BTEC National Diploma.

The School welcomes applications for deferred entry, from mature candidates, and candidates from non-traditional backgrounds. We participate actively in the University's Widening Participation programme within the overall policy of Equal Opportunities.

20. Additional relevant information (e.g. study abroad, information on placements, matters specific to professional courses). *Please mention any distinctive attributes of the programme that are special to Bristol.*

21. Further information about the programme is available from:

Dr. Ann M. Pullen (phone 0117 3312025; email A.M.Pullen@bristol.ac.uk)

Footnote

Levels

20 See information on TSU website at: **http://www.bris.ac.uk/tsu/units/levels.html**

21 Stages

A stage normally relates to a full-time year of study. For example it may take part-time students two or more years to finish stage one and gain sufficient credits to obtain a certificate of HE.

Note

Please see the University's Credit Framework (http://www.bris.ac.uk/tsu/lta/mod/creditframe.doc) for guidance on minimum amounts of credit at different levels required for each award of the University.

9. *MARKING SCHEME*

Marking within the school is based on the University's 21-point marking scheme

Grade	0-20 point scale	0-100 point scale	Criteria to be satisfied
A	20 19 18	100 94 89	➢ Work would be worthy of dissemination under appropriate conditions. ➢ Mastery of advanced methods and techniques at a level beyond that explicitly taught. ➢ Ability to synthesise and employ in an original way ideas from across the subject. ➢ In group work, there is evidence of an outstanding individual contribution. ➢ Excellent presentation. ➢ Outstanding command of critical analysis and judgement.
	17 16 15	83 78 72	➢ Excellent range and depth of attainment of intended learning outcomes. ➢ Mastery of a wide range of methods and techniques. ➢ Evidence of study and originality clearly beyond the bounds of what has been taught. ➢ In group work, there is evidence of an excellent individual contribution. ➢ Excellent presentation. ➢ Able to display a command of critical analysis and judgement.
B	14 13 12	68 65 62	➢ Attained all the intended learning outcomes for a unit. ➢ Able to use well a range of methods and techniques to come to conclusions. ➢ Evidence of study, comprehension, and synthesis beyond the bounds of what has been explicitly taught. ➢ Very good presentation of material. ➢ Able to employ critical analysis and judgement. ➢ Where group work is involved there is evidence of a productive individual contribution.
C	11 10 9	58 55 52	➢ Some limitations in attainment of learning objectives, but has managed to grasp most of them. ➢ Able to use most of the methods and techniques taught. ➢ Evidence of study and comprehension of what has been taught ➢ Adequate presentation of material. ➢ Some grasp of issues and concepts underlying the techniques and material taught. ➢ Where group work is involved there is evidence of a positive individual contribution.
D	8 7	48 45	➢ Limited attainment of intended learning outcomes. ➢ Able to use a proportion of the basic methods and techniques taught.
E	6	42	➢ Evidence of study and comprehension of what has been taught, but grasp insecure. ➢ Poorly presented. ➢ Some grasp of the issues and concepts underlying the techniques and material taught, but weak and incomplete.
	5	35	➢ Attainment of only a minority of the learning outcomes. ➢ Able to demonstrate a clear but limited use of some of the basic methods and techniques taught. ➢ Weak and incomplete grasp of what has been taught. ➢ Deficient understanding of the issues and concepts underlying the techniques and material taught.
	1 - 4	20	➢ Attainment of nearly all the intended learning outcomes deficient. ➢ Lack of ability to use at all or the right methods and techniques taught. ➢ Inadequately and incoherently presented. ➢ Wholly deficient grasp of what has been taught. ➢ Lack of understanding of the issues and concepts underlying the techniques and material taught.
0	0	0	➢ No significant assessable material, absent, or assessment missing a "must pass" component.

10. *STUDENT WORKLOAD*

Faculty of Medical and Veterinary Sciences student workload statement

Success at undergraduate levels depends on your being able to make the transition to self-motivated, independent learning. The programmes offered in the Faculty are designed to assist you in this development, in many cases by starting with units in which timetabled teaching, such as lectures and practical classes, provides the foundations of knowledge and skills in a subject, moving on to individual clinical or research based work. Over time you will be expected to take increasing responsibility for your own learning, guided by the feedback on your work that you will receive from staff. But at the heart of your studies at every level there must be regular and disciplined individual reading, reflection and writing, whether in the library or at home. It is this skill of independent studies, above all others, that will serve you best when you leave the University.

Student workloads in the Faculty of Medical and Veterinary Science are calculated on the assumption that you will work **at least** an average of 40 hours per week over the academic year. This workload includes all types of activity related to the delivery and assessment of taught units.

A major component of this workload in the early years of your programme is the time that you spend in class, in contact with the teaching staff, which includes lectures, laboratories, tutorials and practical classes. Outside classes you will need to undertake two types of academic activity. One type is that directed by your unit (such as practical class reports, project work). The other type requires you to pursue self-motivated independent learning in order to build your knowledge and understanding of the subjects you are studying. Such independent activities include reviewing lecture material, reading textbooks and the scientific literature, and revising for examinations. In later years of your programme, timetabled teaching will make up a smaller proportion of your overall workload and you will spend much of your time pursuing independent study.

Wednesday afternoon is set aside for students to engage in extracurricular activities, such as sporting activities, however, formal teaching is undertaken on Wednesday mornings.

You will be expected to work during most University vacations. All students are expected to use the Christmas and Easter holidays to revise for the examinations held in January and in May/June. Should you be unsuccessful in the summer examinations, you should expect to set aside sufficient time over the summer vacation firstly to consolidate your understanding and then to revise intensively for the resit examinations held in September (resit examinations are not available in the final year of BSc programmes).

Certain components of the teaching and assessment are mandatory - for details see individual unit handbooks. These may require students to undertake study and assessments at times outside normal university hours of work, including on days associated with religious observance.

The medical science BSc programmes conform to the University modular framework, where 10 credit points represent about 100 hours of student work.

We recognise that many students have to take paid employment to fund their studies. In order to achieve a sensible balance between work and study, you are advised to undertake paid work for no more than 15 hours per week during teaching blocks.

Typical values for average weekly workloads for programmes in the Faculty of Medical and Veterinary Sciences

Year of programme	Staff contact hours/ week[1]	Other directed hours/week[2]	Independent study hours/week[2]
1	20	10	10
2	20	10	10
3	5	20	15

[1] These figures are nominal hours and represent the average and in practice will vary from programme to programme and week to week.

[2]Again these figures are nominal hours representing a minimum figure. The exact figures will depend on variables such as the type of work undertaken and the individual's background and learning styles

11. *ASSESSMENT LOADS*

(i) Rationale

(a) Practicals

First year students begin by using eBiolabs to prepare for practical laboratory work and to submit their data after the practical classes. The completion of the pre- and post-lab assignments contributes 2-5% to the assessment of the unit, this generally ensures that students complete the appropriate work. In the Introduction to Microbiology unit, the Lac Operon practical is written up as a traditional laboratory experiment report and this is weighted 3%. The combined weighting for the assessment of practical work for all CMM first and second year units contributes 5% to the units. (See table)

(b) Essays

In the first year, the students are prepared for writing their first essay by attending a session on essay writing and a second to ensure that students know that they should use their own words and should not plagiarise the work of others. Then, prior to the first Introduction to Microbiology tutorial, the students are asked to assess and rank four student essays using the marking criteria. The tutors then run through how essays are assessed during the tutorial. During the following week the students write and submit their first essay. Essays in CMM Level 4/C units are worth 5% of the unit marks. The essay in Normal and Tumour Cells is prepared in advance, but is then written under exam conditions. It is hoped that this stepwise progression will help students to get used to writing exam essays ahead of the unit exams in the January Assessment Period.

(c) Mid-unit assessments

From the beginning of the programme, after attending lectures first year students are encouraged to read over their notes, the lecture PowerPoint presentations and the relevant sections of the textbooks. They are given extra revision time during the week prior to the mid-unit assessments which use MCQs to assess knowledge across the breadth of the intended learning outcomes covered in the lectures. The mid-unit assessments contribute 10 or 15% of the unit marks in the first and second year units organised by CMM, with the higher contribution if an essay is included.

(d) Unit exams

For all CMM Level 4/C first year units the exams are 2 hours long and include both MCQs and 2 essays. It is expected that students will take about 1 hour to answer the 50 MCQs and will then write two essays in the remaining hour. In the second year the exams are 2.5 hours long, with the expectation that the students will write longer more detailed essays with 45 minutes available for each. This is extended to hour long essays in the final year exams, when the students choose 3 from 6 and are expected to bring in evidence of independent reading for a first class answer. No MCQs are used in the final year, when students are being assessed for their ability to integrate material from multiple sources.

(e) Calculations and Data Handling

Throughout their practical work, students practice calculations. Example questions are also available to practice within eBiolabs. Biochemical calculations are formatively assessed and feedback provided during tutorials in Biochemistry 1G. Subsequently, data handling questions are answered as part of the tutorial work in the second year molecular genetics units: Recombinant DNA Technology and

Gene Expression and Rearrangement. In the final year, each lecture unit provides an opportunity for students to practice a data handling question relevant to the field. In the final 3 hour exam paper the students answer 2 questions from a choice of 10, one relevant to each lecture unit. This Data Handling exam contributes 25% to the 40 credit point Research Skills unit.

(f) Oral presentations

Beginning in the first few weeks of the programme and continuing throughout the three years students give oral presentations. This requires the students to research a topic, prepare and deliver a PowerPoint presentation and then respond to questions. The talks in the first and second year units contribute 2-5% of the unit marks. In the final year students give an oral presentation on the background and aims of their projects (5% of the project mark) and then at the beginning of the viva voce they give a 10 minute presentation followed by a period of responding to questions from the supervisor and independent assessor (10% of the project mark).

(g) Peer assessed work

The introduction of the Biomedical Research, Employability and Enterprise Skills unit in the second year will result in the first peer assessed work for the CMM students, where the students will apply for jobs or training and be interviewed by panels of their classmates (20% of the unit mark). Novel forms of assessment will also include panels of assessors marking business plans of a group of students in the Enterprise element (8% of the unit mark). The executive summary for the business plan will be worth 2%. Careful attention has also been paid to the allocation of marks for the assessment of biomedical research skills including scientific writing plus the production of a figure to present data (10%), a mini research grant application (10%), and the summer exam, which will assess the ability to write an abstract, knowledge and application of basic statistics, as well as an understanding of ethical issues (50% of the unit mark). An opportunity for students to practice the use of statistical tests will be available via Blackboard and formative feedback will be provided on line.

(h) Projects

The final year project assessment has been carefully set so that each component of the project work is given a mark. The project marks for Technical Ability (5%), Industry and Initiative (5%), and Originality / Independence of Approach (5%) are given by the supervisor, whereas the marks for the oral presentations, the various components of the dissertation and the viva voce are given by the supervisor and an independent assessor. The project marks contribute 75% to the overall unit mark for the 40 credit point Research Skills unit.

Ann Pullen

31/08/13

(ii) Assessment Load for Cellular and Molecular Medicine UG programmes for 2013-14

Year and Unit title	Assessment type	% of unit mark	Time (h)	Formative or Summative (S) with feedback	Notes of question type, etc.
Year 1					
Introduction to Microbiology 20 credit points	1500 word essay (week 4)	5		S with feedback	
	Oral presentation	5		S with feedback	
	eBiolabs pre-lab quizzes and post-labs	2		S with feedback	Weighted pre-lab (20%): post-lab (80%)
	Practical write-up	3		S with feedback	
	Mid-unit assessment (week 6)	10	1	S with feedback	30 multiple choice questions (5 stems)
	Quiz and revision session (week 12)	0		Formative	
	Exam (January)	75	2	S and marks for sections provided	50 multiple choice questions (5 stems) and 2 essays from choice of 5
Normal and Tumour Cells 20 credit points	Essay under exam conditions (week 5)	5	1	S with feedback	
	Oral presentation	5		S with feedback	
	eBiolabs pre-lab quizzes and post-labs	5		S with feedback	
	Mid-unit assessment (week 8)	10	1	S with feedback	50 multiple choice questions (5 stems)
	Quiz and revision session (week 12)	0		Formative	
	Exam (January)	75	2	S and marks for sections provided	50 multiple choice questions (5 stems) and 2 essays from choice of 5
Microbes and Disease 20 credit points	1500 word essay (week 15)	5		S with feedback	
	Oral presentation	2		S with feedback	
	eBiolabs pre-lab quizzes and post-labs	5		S with feedback	
	Poster presentation (week 23)	3		S with feedback	
	Mid-unit assessment (week 20)	10	1	S with feedback	50 multiple choice questions (5 stems)
	Exam (May/June)	75	2	S and marks for sections provided	50 multiple choice questions (5 stems) and 2 essays from choice of 5

Pathological Responses of Cells 20 credit points	Oral presentation	5		S with feedback	
	eBiolabs pre-lab quizzes, post-labs and completed practical sheets	5		S with feedback	
	Mid-unit assessment (Week 19)	15	1.5	S with feedback	50 multiple choice questions (5 stems) and essay
	Exam (May/June)	75	2	S and marks for sections provided	50 multiple choice questions (5 stems) and 2 essays from choice of 5
Biochemistry 1G 40 credit points	eBiolabs pre-lab quizzes and post-labs	10		S with feedback	
	Tutorial work	0		Formative	Fortnightly tutorials, normally practice exam questions
	Exam (January)	45	3	S with feedback	MCQs, essays & calculation question
	Exam (May/June)	45	3	S with feedback	MCQs, essays & calculation question

Year and Unit title	Assessment type	% of unit mark	Time (h)	Formative or Summative (S) with feedback	Notes of question type, negative marking, etc.
Year 2					
Infection and Immunity 20 credit points	2000 word essay (week 5)	5		S with feedback	
	Oral presentation	5		S with feedback	
	eBiolabs pre-lab quizzes and post-labs	5		S with feedback	Weighted pre-lab (20%): post-lab (80%)
	Mid-unit assessment (week 9)	10	0.75	S with feedback	37 multiple choice questions (5 stems each True/False/Don't know)
	Exam (January)	75	2.5	S and marks for sections provided	50 multiple choice questions (5 stems each True/False/Don't know) and 2 essays from choice of 5
Cellular & Molecular Pathology 20 credit points	Essay under exam conditions (week 22)	5	0.75	S with feedback	
	Oral presentation	5		S with feedback	
	eBiolabs pre-lab quizzes, post-labs and laboratory write-up	5		S with feedback	
	Mid-unit assessment (week 19)	10	0.75	S with feedback	37 multiple choice questions (5 stems each True/False/Don't know)
	Exam (May/June)	75	2.5	S and marks for sections provided	50 multiple choice questions (5 stems each True/False/Don't know) and 2 essays from choice of 5
Recombinant DNA Technology 20 credit points	Essay for tutorial	2.5		S with feedback	
	Data handling question for tutorial	5		S with feedback	
	Essay for tutorial	2.5		S with feedback	
	eBiolabs and laboratory reports	5		S with feedback	
	Exam (January)	85	2.5	S and marks for sections provided	50 multiple choice questions (5 stems) and two essays from choice of 6
Gene Expression and Rearrangement 20 credit points	Essay for tutorial	2.5		S with feedback	
	Data handling question for tutorial	5		S with feedback	
	Essay for tutorial	2.5		S with feedback	
	eBiolabs and laboratory reports	5		S with feedback	
	Exam (May/June)	85	2.5	S and marks for sections provided	50 multiple choice questions (5 stems) and two essays from choice of 6

Biomedical Research, Employability and Enterprise Skills 20 credit points	Scientific writing exercise including preparation of a scientific figure from data provided and writing an abstract	10		S with feedback	
	CV and job application covering letter	10		S with feedback	Peer assessment
	Performance at interview	10		S with feedback	Peer assessment
	Executive summary for a business plan	2		S with feedback	
	Oral presentation of business plan	8		S with feedback	
	Mini research grant application using a defined proforma	10		S with feedback	
	Exam (May/June)	50	2	Summative	Multiple choice questions, extended matching questions and abstract writing exercise
Students also take 20 credit points of optional or open units in Year 2					

Year and Unit title	Assessment type	% of unit mark	Time (h)	Formative or Summative (S) with feedback	Notes of question type, negative marking, etc.
Year 3					
Lecture units 20 credit points Each student takes 4 from a choice of 10 Level 6/H CMM units	Practice Exam Essay (December, independently, closed book)	0	1	Formative	Feedback provided in tutorial in January
	Data Handling practice independently	0		Formative	Feedback provided in class
	Exam (May/June)	100	3	Summative	3 essays from choice of 6
Research Skills 40 credit points	Data Handling exam	**25**	3	Summative	2 questions chosen from 10 Practice questions in each lecture unit
Each student takes either a laboratory project or a literature-based or Bioinformatics project	**Laboratory-based Project**	**75**			
	Oral presentation	(5)	0.25	S with feedback	10 minute talk, 5 minutes for questions
	Technical Ability	(5)		Summative	
	Industry and Initiative	(5)		Summative	
	Abstract	(5)		Summative	
	Introduction	(30)		Summative	Formative feedback on draft (week 13)
	Materials and Methods	(5)		Summative	
	Results and Discussion	(25)		Summative	Formative feedback on draft (week 17)
	Presentation of the dissertation	(10)		Summative	
	viva voce	(10)		Summative	

Each student takes either a laboratory project or a literature-based or Bioinformatics project	**Literature-based or Bioinformatics Project**	**75**			
	Oral presentation	(5)	0.25	S with feedback	10 minute talk, 5 minutes for questions
	Industry and Initiative	(5)		Summative	
	Originality / Independence of Approach	(5)		Summative	
	Abstract	(5)		Summative	
	Introduction	(15)		Summative	Formative feedback on draft (week 13)
	Scope	(10)		Summative	
	Detail	(15)		Summative	
	Conclusions and Analysis	(15)		Summative	Formative feedback on draft (week 17)
	Presentation of the dissertation	(15)		Summative	
	viva voce	(10)		Summative	