Disclaimer

This document was published in September 2016 and was correct at that time. The School reserves the right to modify any statement if necessary, make variations to the content or methods of delivery of programmes of study, to discontinue programmes, or merge or combine programmes if such actions are reasonably considered to be necessary by the College. Every effort will be made to keep disruption to a minimum, and to give as much notice as possible.

An electronic copy of this handbook can be found on the School website: https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrenstudents/home.aspx, where it will be possible to follow the hyperlinks to relevant web pages.
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1 Introduction to the School

1.1 Welcome

On behalf of the staff, I would like to welcome all new students joining the School of Biological Sciences. We hope that this will be an interesting, rewarding and enjoyable year and that you will take full advantage of the opportunities open to you. To our returning students, we welcome you back and hope that you will make good progress in your study programme over the coming year.

The School of Biological Sciences offers seven degree programmes, covering a wide range of subjects within the biological sciences. For all degrees, we aim to provide you with the highest level of teaching and pastoral care. In return, we ask for a parallel commitment from you to give of your best and to make the most of the opportunities offered for gaining both academic and transferable skills. Ensure you attend all the lectures, practicals, tutorials and study sessions, in order to maximize your understanding of the subjects and therefore achieve the best degree result. We will aim to guide you, to challenge your intellect, to provoke your curiosity and hopefully to inspire you but you must take ownership of your learning. What you achieve during your time in the School will depend very much on you. This is an amazing opportunity for you to read extensively and to think constructively and creatively about subjects that fascinate you. This opportunity may not come back to you until you retire, so make the most of it now!

Several changes have taken place within the School of Biological Sciences over the summer, as part of our strategy of continuous improvement. We welcome a new member of academic staff, who will make a valuable contribution to teaching and student support. We have increased our provision of sessions on study skills, to help support our new entrants in making the transition to University study. We have also made changes to several courses, in response to student feedback. A brief outline of the courses offered this year can be found within this handbook. The School strategy of regular curriculum review, together with the introduction of new courses, has prompted some modification to the degree programmes. A summary of each programme is also included.

The School of Biological Sciences recently obtained accreditation by the Royal Society of Biology, for all seven degree programmes offered. This important accolade is currently attributed to a limited number of universities across the country, for 3 year degrees. The accreditation is a mark of confidence by the Royal Society of Biology in the level of knowledge, practical skills, and graduate-level transferable skills that each student will acquire, by the end of their degree. It stands as a mark
of excellence of the degree programmes offered by the School of Biological Sciences. It is an award of which you should be proud, as it provides independent evidence of the high quality of your degree to future employers.

I would urge you to read this handbook carefully since it contains a lot of useful information about the School and the organization of teaching. Please read the important sections about communication, the processes to follow with regard to handing in work, what to do if you’re ill, who to go to if you need help, and the regulations about assessments and exams. This handbook will also direct you to places on the College website where you can obtain further information. You will undoubtedly want to refer to this Handbook at other times throughout the year, and many of the common questions from students are answered here. The Handbook is available on the School website, and is updated on an annual basis. The information about College matters, including the Student Charter, can be accessed via the College web-pages. If you require further information, please do feel welcome to come and speak to the administrative or academic staff.

Our very best wishes to you all for an enjoyable and successful academic year.

Dr J Murdoch
Director of Teaching
1.2 How to find us: the School

The School of Biological Sciences is located in the Bourne Building. This can be found on the College campus map as buildings 31 and 34.

The School is the largest academic centre in the Science Faculty with 32 full-time and 2 part-time members of academic staff. We are responsible for teaching over 500 undergraduate students. In addition, there is a large population of postgraduate students (both MSc and PhD) and of postdoctoral research scientists working in the School. The School is housed entirely in the Bourne-Wolfson complex on the main College campus.

The Bourne building is open to undergraduate students from 8.00 am to 6.00 pm on working days, but not at weekends or on public holidays. For safety reasons undergraduate students are not normally allowed inside the building outside these times without written permission, signed by the Head of School.

<table>
<thead>
<tr>
<th>Room</th>
<th>Room</th>
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<tbody>
<tr>
<td>School Teaching Office</td>
<td>5-03/4</td>
</tr>
<tr>
<td>Teaching laboratories – second floor</td>
<td>2-02/3</td>
</tr>
<tr>
<td>Teaching laboratory – third floor</td>
<td>3-03</td>
</tr>
<tr>
<td>Meeting Room</td>
<td>5-11A</td>
</tr>
<tr>
<td>Seminar Room</td>
<td>W351</td>
</tr>
</tbody>
</table>
1.3 Map of the Egham campus
# How to find us: the staff

## CONTACT DETAILS

### Head of School:

<table>
<thead>
<tr>
<th>Initials</th>
<th>Name</th>
<th>Phone extension</th>
<th>Room No</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM</td>
<td>Dr David Morritt</td>
<td>44-3971</td>
<td>5-15</td>
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<tr>
<td></td>
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<td></td>
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</table>

### Deputy Head:

<table>
<thead>
<tr>
<th>Initials</th>
<th>Name</th>
<th>Phone extension</th>
<th>Room No</th>
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</thead>
<tbody>
<tr>
<td>VJ</td>
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</tbody>
</table>

### Academic Staff:

<table>
<thead>
<tr>
<th>Initials</th>
<th>Name</th>
<th>Extn</th>
<th>Room No</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
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<tr>
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<td></td>
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<tr>
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Administration of Teaching in the School of Biological Sciences

**Academic Staff**

Director of Teaching  
Academic Coordinator, Organismal Bioscience Degrees*  
Academic Coordinator, Molecular Bioscience Degrees#  
Chair, SBS Sub Board of Examiners  
Examinations Officer  
Careers Liaison Officer  
Disability and Dyslexia Services contact

**Ext** **Room**

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
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<th>Room</th>
</tr>
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<tbody>
<tr>
<td>Director of Teaching</td>
<td>Dr Jenny Murdoch</td>
<td>6289</td>
<td>5-05</td>
</tr>
<tr>
<td>Academic Coordinator, Organismal Bioscience Degrees*</td>
<td>Dr Becky Thomas</td>
<td>4420</td>
<td>5-19</td>
</tr>
<tr>
<td>Academic Coordinator, Molecular Bioscience Degrees#</td>
<td>Dr James McEvoy</td>
<td>3770</td>
<td>3-29b</td>
</tr>
<tr>
<td>Chair, SBS Sub Board of Examiners</td>
<td>Dr James McEvoy</td>
<td>3770</td>
<td>3-29b</td>
</tr>
<tr>
<td>Examinations Officer</td>
<td>Dr Jorge Tovar-Torres</td>
<td>4159</td>
<td>3-22</td>
</tr>
<tr>
<td>Careers Liaison Officer</td>
<td>Dr Walter Lucchesi</td>
<td>3548</td>
<td>3-23</td>
</tr>
<tr>
<td>Disability and Dyslexia Services contact</td>
<td>Dr Becky Thomas</td>
<td>4420</td>
<td>5-19</td>
</tr>
</tbody>
</table>

**Administration Team**

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Ext</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>School Manager</td>
<td>Ms Michelle Jux/Mrs Carrie Hedgeworth</td>
<td>3763</td>
<td>5-02</td>
</tr>
<tr>
<td>Faculty Administrator (Postgraduate)</td>
<td>Mrs Tracey Jeffries</td>
<td>3559</td>
<td>5-15</td>
</tr>
<tr>
<td>Faculty Administrator (Teaching)</td>
<td>Mrs Doreen Bravery</td>
<td>3557</td>
<td>5-04</td>
</tr>
<tr>
<td>Faculty Administrator (Undergraduate)</td>
<td>Mrs Nikki Moss</td>
<td>3776</td>
<td>5-03</td>
</tr>
<tr>
<td>Faculty Administrator (Undergraduate)</td>
<td>Mrs Mel Kiukkanen</td>
<td>3773</td>
<td>5-03</td>
</tr>
<tr>
<td>Technical Operations Manager</td>
<td>Ms Elaine Turton</td>
<td>3391</td>
<td>5-13</td>
</tr>
<tr>
<td>School Health &amp; Safety Coordinator</td>
<td>Ms Elaine Turton</td>
<td>3391</td>
<td>5-13</td>
</tr>
</tbody>
</table>

If you telephone from outside the College:
Dial: 01784 and prefix the extension (extn) number with 44 for 3xxx extns, or 41 for 4xxx extns, and 27 for 6xxx extns, as indicated above.

# Molecular Bioscience Degrees: Biochemistry, Biomedical Sciences, Medical Biochemistry, Molecular Biology.
1.5 How to find us: the Teaching Office

The Teaching Office is located in the Bourne Building, room 5-03/4, on the fifth floor.

Student Enquiries and Questions: For matters specifically relating to the Director of Teaching or the Academic Coordinators, students should consult the Faculty Administrator (Teaching), Mrs Doreen Bravery in room 5-04 (Tel: 01784 443557; e-mail: SBSStudentEnquiries@royalholloway.ac.uk)

All other enquiries should be directed to the Faculty Administrator (Undergraduate), Mrs Nikki Moss in room 5-03 (Tel: 01784 443776; email: SBSStudentEnquiries@royalholloway.ac.uk)

Teaching Office Opening Hours: The Teaching Office will normally be open 9.00am to 5.00pm Monday to Friday (excluding public holidays).

1.6 The School: practical information

IF YOU HAVE A PROBLEM:

- With a topic in an individual course: see the lecturer concerned
- With the administration or examination of an individual course: see the Course Coordinator
- With examination arrangements in the School: see the Exams Officer, Dr J Tovar-Torres
- With course selection: see your Personal Advisor
- With general academic organisation: see the appropriate Academic Coordinator
- With personal difficulties: see your Personal Advisor or the Counselling Service https://www.royalholloway.ac.uk/ecampus/welfare/counselling/home.aspx
- With general non-academic queries: go to the Student Services Centre in the Windsor Building https://www.royalholloway.ac.uk/ecampus/studentservicescentre/home.aspx
• With a problem common to many students: bring it to the attention of the School Staff-Student Committee

• With English as a second language: contact your Personal Advisor or the Centre for Development of Academic Skills (CeDAS) https://www.royalholloway.ac.uk/ecampus/cedas/home.aspx

• With issues relating to specific learning difficulties: see the Disability and Dyslexia Services Liaison officer, Dr B Thomas

Students can also make an appointment to see the Director of Teaching, by contacting Mrs Doreen Bravery, Faculty Administrator (Teaching).

1.7 Staff research interests

Members of the School of Biological Sciences have a wide range of research interests and teaching expertise. These, together with their academic and managerial and responsibilities, are shown in Appendix 1. Further information on research can be found on the School website.
2 Communication

It is vitally important that you keep in touch with us and we keep in touch with you. Members of staff will often need to be able to contact you to inform you about changes to teaching arrangements, special preparations you may have to do for a class or meetings you might be required to attend. You will also need to be able to contact members of the School, for example, if you are unable to attend a class, or wish to arrange a meeting with a lecturer or with your Personal Advisor.

Email to your College email address is routinely used and you should check regularly (at least daily) for any official communication that has been sent to your email address. Do not ignore the email as it will be assumed that it will have been received by you within 48 hours, excluding Saturdays and Sundays.

You should also make a habit of checking the student pigeonholes in the School.

2.1 Email

The College provides an email address for all students free of charge and stores the address in a College email directory (the Global Address List). Your account is easily accessed, both on and off campus, via the student portal https://campus-connect.rhul.ac.uk/cp/home/displaylogin (Campus Connect) or direct via Outlook.com http://outlook.com/. Email to this address will be used routinely for all communication with students. Email may be used for urgent communication and by course tutors to give or confirm instructions or information related to teaching so it is important that you build into your routine that you check your emails at least once a day. Email communications from staff and all the Faculty Administrators should be treated as important and read carefully.

The College provides a number of PC Labs around Campus for student use, and you can also use your own laptop/smart phone etc., so the School expects you to check your email regularly. It is also important that you regularly clear your College account of unwanted messages or your inbox may become full and unable to accept messages. Just deleting messages is not sufficient; you must clear the ‘Sent Items’ and ‘Deleted Items’ folders regularly. It is your responsibility to make sure your College email account is kept in working order. If you have any problems contact the IT Service Desk http://itservicedesk.rhul.ac.uk/.

The School of Biological Sciences will only use the address in the College Global Address List and does not use private or commercial email addresses, such as Hotmail or Gmail. This is important – the School policy
is to generally only respond to emails received from College email accounts, as we can only be sure of the identity of the sender from these accounts. Students who prefer to use commercial email services are responsible for making sure that their College email is diverted/forwarded to the appropriate commercial address. Detailed instructions on how to forward mail can be accessed by visiting http://help.outlook.com/ and searching for forwarding (you may need to use IE browser to access this as the link does not work on some browsers). This process is very easy, but you do have to maintain your College account. When you delete a forwarded message from, say, Hotmail, it will not be deleted from the Royal Holloway account. It is your responsibility to log on to your College account and conduct some account maintenance or your account may become full and therefore will not forward messages.

If you send an email to a member of staff in the School during term time you should normally receive a reply within 3-4 working days of its receipt. Please remember that there are times when members of staff are away from College at conferences or undertaking research.

2.2 Post

All post addressed to students in Biological Sciences is delivered to the student pigeonholes (alphabetical by surname) in the Bourne Tunnel. At the end of each term student pigeonholes are cleared of accumulated mail which is then destroyed. Important information from Registry is often sent by internal post so you are advised to check them regularly. Please note that you should not arrange for personal mail to be sent to you via the School.

2.3 Telephone and postal address

It is your responsibility to ensure that your telephone number (mobile and landline) and postal address (term-time and forwarding) are kept up to date on the student portal (Campus Connect) https://campus-connect.rhul.ac.uk/cp/home/displaylogin. There are occasions when the School needs to contact you urgently by telephone or send you a letter by post.

The School does not disclose students’ addresses and telephone numbers to anybody else (including relatives and fellow students) without the student’s specific permission to do so.

2.4 Notice boards

The official student notice boards are on the walls in the Bourne Tunnel. Every effort is made to post notices relating to class times etc. well in advance, but occasionally changes have to be made at short notice.
and in that case email will be used. Information on teaching venues may also be posted on Moodle, in the section for each course.

*It is your responsibility to check the times and venues of all class meetings and of any requirements (e.g. essay deadlines) relating to your courses.* If in doubt, please ask!

### 2.5 Personal Advisors

Every student will be assigned to a member of the academic staff who will serve as his/her Personal Advisor (Tutor) throughout their undergraduate programme. Personal Advisors are available for advice on all academic matters and will be responsible for your formal tutorial group meetings, although specific information relating to lecture courses or practical work is best obtained from the lecturer or the academic staff member in charge of the laboratory class. The Teaching Office and your Personal Advisor should be informed of any health problems or other difficulties which may affect coursework or performance in the examinations, as well as anything which may have some bearing on safety in the laboratories.

**Full attendance at tutorials is expected and Personal Advisors maintain attendance records for all of their tutees.** Tutorials provide an important part of the School’s student support activities and great emphasis is placed on your attendance and participation as well as on the completion of tutorial assignments. Tutorial activities are a major source of training in transferable skills such as written and oral communication and in examination skills. Tutorials provide an opportunity to practice key skills in a small group setting, building on the study skills with which you’ll receive training in first year. Failure to attend and participate in tutorials may result in a Formal Warning which will remain on your record throughout your time at Royal Holloway. In addition, Personal Advisors will not be able to comment on your aptitude, for example to deliver a short verbal statement, if they are asked to supply academic references on your behalf on any future occasion. Attendance at tutorials will also be considered when commenting on reliability, punctuality and similar issues frequently raised by potential employers.

**In addition to formal tutorials, you should contact your Personal Advisor at the beginning and at the end of each term as a minimum.** Meetings towards the end of the Summer term are particularly important as this is the time when annual progress is reviewed. Pre-selection of course units for the following year is made early in the summer term and you may need to discuss your choices with your Personal Advisor. The onus is on you to arrange a date to see your Personal Advisor at the end of term as it is often very difficult to contact students at this time. For information on courses taught outside the School of Biological Sciences, your Personal Advisor will advise you on whom to contact in the appropriate
DO NOT HESITATE TO CONTACT YOUR PERSONAL ADVISOR AT ANY TIME IF YOU HAVE PROBLEMS. Your Personal Advisor acts to provide you with pastoral care as well as academic guidance. If staff cannot meet with you immediately, they will arrange a mutually convenient time for you to speak with them, usually within 1 or 2 days. It is the intention that all members of the academic staff should act as Personal Advisor for a similar number of students. It is possible in exceptional circumstances to change your Personal Advisor. In such cases please consult Dr J Murdoch, Director of Teaching.

The easiest way to contact academic staff is:
- by e-mail
- by leaving a message in the staff pigeon hole (on level 5)
- after lectures
- during practicals
- by going to their office

Please do be aware that all members of academic staff are involved in teaching and also run active research groups. Staff members are unlikely to be able to see you at short notice. You are asked to seek an appointment via email, whenever possible.

Job references: Your Personal Advisor is best placed to provide academic references in any future employment or further study applications. However, students cannot assume that their Personal Advisor or any other academic member of staff will automatically provide a reference if his/her name is cited in an application. Permission should be requested before the name is cited, and you should check that the academic will be available to write a reference in a timely fashion.

As you are likely to ask your Personal Advisor to provide references for you in the future, you should aim to make a good impression with your Personal Advisor, from an early stage! Attend all tutorials punctually, complete all set assignments on time, prepare any required material beforehand and actively engage in discussions in the tutorials. You should aim to build a good professional relationship with your Personal Advisor. It’s also useful, when asking for references, to let your Personal Advisor know of any serious difficulties encountered over the year, as well as keeping them informed of any positive achievements. Remember that your CV should include your academic results and also information about the key transferable skills that you are acquiring over the course of your degree. Also include brief information on any relevant work experience, voluntary activities or positions of responsibilities you’ve held. The more information you can provide, the more able we are to write an informed reference!
2.6 Questionnaires

Questionnaires for obtaining student feedback on individual courses are generated by the College and distributed for completion in the penultimate lecture of each course. All responses are anonymous. Your comments are invaluable for highlighting aspects of the course that you’ve particularly enjoyed, as well as helping to improve courses for future students. Students are also asked to complete a student experience survey, online, towards the end of their second year. Final year students complete the National Student Survey, to allow comparisons between universities across the country.
3 Teaching

3.1 Dates of terms

Term dates can also be found on the College website
https://www.royalholloway.ac.uk/aboutus/collegecalendar/home.aspx

For 2016-17, the term dates are:
- Autumn Term (First Term): 19th September – 9th December 2016
- Spring Term (Second Term): 9th January – 24th March 2017
- Summer Term (Third Term): 24th April – 9th June 2017

Graduation ceremonies: 10th – 14th July 2017

You are expected to be in the UK and engaging with your studies during term time. In the case of an emergency which requires you to leave the country and/or miss lectures/seminars/practicals etc., you are expected to keep the School informed and fill in a Notification of Absence Form (see 3.3 below). During the summer term, after the summer examination period, you are expected to attend all required academic activities organized by the School and to be available should you be required to meet with College staff for any reason.

There are some compulsory academic activities after the main examination period for students in the School of Biological Sciences. It is also sometimes necessary to ask for the return of coursework – for instance, for moderation by the External Examiners. No student should leave College in the summer until the END of term, unless they have very good reasons for leaving early and have obtained permission beforehand.

3.2 Reading weeks

Reading Week Term 1: 31st October – 4th November 2016
Reading Week Term 2: 13th February – 17th February 2017

Reading Week is incorporated into the Autumn and Spring terms. This is an integral part of the teaching programme and is not simply a ‘half-term holiday’. There will usually be no lectures, formal laboratory or fieldwork classes during Reading Week, but note that for first years there are likely to be revision classes running that you will be expected to attend. Final year students may also be able to carry out Project work in Reading Week or, indeed, may be required to give their project presentation. Reading Week will provide extra time for you to read around the material you have covered in lectures. In addition the
deadline for a number of tutorial and coursework assignments will fall in the following week thus allowing you to use Reading Week for the preparation of these assignments.

However, remember that if you are some distance away from College during Reading Week you may not be able to access data needed for your practical reports (e.g. from a lab partner) and this will NOT be accepted as a reason for requesting extensions to hand-in deadlines.

3.3 Attending classes and engaging with your studies

The College has a responsibility to ensure that all students are attending regularly and progressing with their studies. While it is essential that you attend all the compulsory learning activities related to your programme of study, the College recognises that emergencies may occur at any time throughout the year. In light of this, the School of Biological Sciences requires a minimum attendance level of 80%, which is also the minimum set by the College. You should be aware that you may also study courses that have different and specific course attendance requirements, particularly if you are taking courses in another department, so it is essential that you check all programme and course handbooks to ensure you are fully aware of the requirements.

Your regular attendance in class and consistent engagement with your studies are fundamental requirements of your learning experience with the College. As such, failure to attend and/or absence without permission can result in serious consequences and may lead to disciplinary action, including the termination of your registration (see 3.3.6). Your ‘classes’ are any learning or teaching activity deemed essential to your programme of study. The term is used to encompass a variety of different activities, including lectures, seminars, tutorials, workshops, field work, laboratory work, and meetings with your Personal Advisor.

It is vital that you manage your time effectively, so that any paid employment, voluntary work, extracurricular activities or social commitments do not interfere with periods where you are required to attend classes. With regard to paid employment during the course of your programme of study with the College, the Undergraduate Regulations (http://www.royalholloway.ac.uk/ecampus/academicsupport/regulations/home.aspx) stipulate that the amount of paid work undertaken by a student enrolled with the College on a full-time basis shall not exceed 20 hours per week during term time. No student may undertake paid work which may conflict with his/her responsibilities as a student of the College.
If you face difficulty in attending any classes or undertaking an assessment it is very important that you inform the department(s) in which you are studying as early as possible, citing the reasons for your non-attendance. The department will make a decision on whether or not to authorize your absence. If you are experiencing such difficulties on an ongoing basis, please contact your Personal Adviser or Year Tutor. In addition, an extensive range of additional support, guidance and advice is readily available from the College’s Student Advisory Service (https://www.royalholloway.ac.uk/ecampus/welfare/home.aspx). The Students’ Union also operate an Advice and Support Centre, details on which can be found here http://www.su.rhul.ac.uk/advice/.

3.3.1 Your responsibilities in relation to attendance

Your responsibilities around attendance and engagement include:

- attending all classes necessary for the pursuit of your studies (including lectures, seminars, practicals and personal tutorials);
- undertaking all summative and formative assessment requirements for your courses;
- attending all meetings and other activities as required by the department(s) in which you are studying;
- where you experience any form of difficulty in attending classes, for whatever reason, contacting the department(s) in which you are studying to notify them of your circumstances at the earliest possibility.

You are expected to fully engage in your classes, undertaking any reading, research or further preparation identified between these sessions alongside punctual attendance. It is essential that you make suitable arrangements for travel to your classes and plan to arrive in good time, as teaching will start at five minutes past the hour and finish five minutes before the hour. You will normally be marked absent if you turn up late without good reason.

3.3.2 Departments’ responsibilities for monitoring attendance

The School of Biological Sciences will monitor your attendance at all lectures, practicals, tutorials, and study session, using either paper registers or Clickers. It is your responsibility to complete any attendance register that is circulated, or to activate your Clicker response at the appropriate time, and to make sure that your attendance has been noted. The activities at which your attendance is monitored may vary depending upon the discipline in which you are studying or the department in which you are taking courses in the case of electives, for
example.

It is important that you attend all the learning activities related to your programme of study. Whilst attendance is compulsory at all learning activities, it is recognised that emergencies may occur at any time throughout the year and therefore as indicated above a minimum attendance requirement has been set.

You will be contacted in the event that:

i. you fail to attend for **two weeks** without providing notification of your absence;

ii. you display a **pattern of absence** that the department feels is affecting or is likely to affect your work

iii. you display a pattern of absence that the department feels is a cause for **concern over your wellbeing** or may point to a **disability** which you may not have disclosed.

### 3.3.3 College’s responsibilities for monitoring attendance

The College has a number of important obligations in relation to monitoring your attendance and engagement, including legal responsibilities under the Equality Act (2010). As a result, the College may adjust the attendance requirement for your programme but will only do this when such adjustment does not compromise competence standards or your ability to reach the learning outcomes of your programme. Any need to adjust attendance requirements will be treated case by case and discussed by the department with the Disability and Dyslexia Services (DDS) and Academic Quality and Policy Office (AQPO).

The College also has obligations places on it by UK Visas and Immigration (UKVI) – see 3.3.7 below.

### 3.3.4 Missing classes

If you are unable to attend College for whatever reason you must advise the department in which you taking the course(s) in question and complete the relevant **Notification of Absence Form**, which is available online.

[https://www.royalholloway.ac.uk/ecampus/academicsupport/attendance/notificationofabsence.aspx](https://www.royalholloway.ac.uk/ecampus/academicsupport/attendance/notificationofabsence.aspx)
This must be submitted to the relevant department(s) together with the relevant supporting documentation either before your absence or within five working days of the end of the period of absence.

You should ensure:

a) that you advise the School by contacting the Teaching Office, using the email SBSself-certifications@royalholloway.ac.uk. You should also inform your Personal Advisor of your absences.

b) that you complete the Notification of Absence Form, copies of which are also available from the Health Centre.

c) that you submit the paperwork to your department(s) either before your absence or within FIVE working days of the end of the period of absence. Failure to do so may result in the absence being counted as unacceptable and counting against the minimum attendance level. The Notification of Absence Form, and supporting documents, should be emailed to the Teaching Office using the email SBSself-certifications@royalholloway.ac.uk.

d) that you meet any departmental requirements concerning notification of absence or request for leave of absence as you may be required to meet formally with an academic tutor or the Director of Teaching.
This table shows the documentation that is required should you be absent for any reason. These follow the College guidelines with additional requirements specified by the School of Biological Sciences.

<table>
<thead>
<tr>
<th>Reason for absence</th>
<th>Documentation required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness up to and including 5 consecutive term-time days (excluding Saturdays and Sundays), where no practicals or other assessments have been missed</td>
<td>Completed Notification of Absence Form – Self Certification</td>
</tr>
<tr>
<td>Illness up to and including 5 consecutive term-time days (excluding Saturdays and Sundays), where a practical class or other assessment has been missed</td>
<td>Completed Notification of Absence Form - Self Certification plus Formal Medical Certification signed by the Health Centre, your GP or hospital consultant</td>
</tr>
<tr>
<td>Illness for more than 5 consecutive term-time days (excluding Saturdays and Sundays)</td>
<td>Completed Notification of Absence Form - Self Certification plus Formal Medical Certification signed by the Health Centre, your GP or hospital consultant</td>
</tr>
<tr>
<td>Unrelated to sickness</td>
<td>Notification of Absence Form plus supporting evidence</td>
</tr>
<tr>
<td>Leave of absence request</td>
<td>Notification of Absence Form plus any departmental requirement must be met</td>
</tr>
</tbody>
</table>

Note:
- If you are absent for a prolonged period it is essential that you keep in touch with the School (e.g. through regular emails with your Personal Advisor).
- The School will monitor the frequency of self-certified absences and the Head of School may request a doctor’s medical certificate from you in the event of multiple and/or sustained instances of self-certified illness.
- The departments in which you are studying are responsible for monitoring your attendance and engagement, and deciding whether a period of absence is deemed acceptable or unacceptable (for further information please refer to the online guidance http://www.rhul.ac.uk/ecampus/academicsupport/attendance/notificationofabsence.aspx for details of what constitutes ‘acceptable’ and ‘unacceptable’ circumstances relating to absence). If deemed unacceptable the absence will be recorded as such and will count against your minimum attendance level.
3.3.5 Missing an examination

In the event that you are unable to attend an exam (e.g. through reasons of sudden illness), it is essential that you notify Student Administration at the very earliest possibility. Wherever possible, please try to ensure you contact them via e-mail at student-administration@rhul.ac.uk before the scheduled start of the exam with your name, student ID and confirmation of the exam that you are unable to attend. Please include a brief explanation within the email outlining the reasons for the non-attendance.

This notification will then be forwarded by Student Administration to your department so that they are aware of your non-attendance.

Please note, this notification is not a substitute for formally notifying your department of Extenuating Circumstances. It is essential that you inform your department and Chair of the Sub-board of Examiners by completing the Extenuating Circumstances form. For further information, please refer to the website: https://www.royalholloway.ac.uk/ecampus/academicsupport/examinations/extenuatingcircumstances.aspx.

In the event that you do not complete the Extenuating Circumstances form, your department will be unable to consider the reasons for your non-attendance at your departmental Sub-Board of Examiners.

3.3.6 Consequences of failing to attend

As indicated in 3.3.2 above the Department may contact you if there are concerns about your attendance.

Absence from Practicals and illness on a hand-in deadline: Please be aware that if you miss a practical session then you are highly unlikely to be able to attend an alternative session, even if the practical runs more than once, as class sizes are often already at the maximum. If you are absent from a practical then you must provide the completed Notification of Absence form, plus suitable documentation to support this absence, such as a Medical Certificate. If you are deemed to have an acceptable reason for absence that is supported with suitable evidence, the course coordinator may be able to take this into account when calculating your mark for coursework, if there are more than two practicals on the course. If there are two or fewer practicals on the course, the situation is likely to be referred to the Chair of the Sub-board of Examiners; you may be asked to complete additional work, or be required to submit a formal letter of Extenuating Circumstances (see also section 7). Absence for a reason deemed unacceptable, or failure to provide sufficient supporting documentation, may mean that you are
awarded a mark of zero for that practical. If you are ill on a hand-in deadline, you should make every effort to hand in your work, perhaps by asking a friend to bring it to the School. If you are unable to hand in on the deadline, you should aim to hand in the work as soon as you return, and make an appointment to see the Director of Teaching to discuss a possible extension to the deadline. Again, you will need evidence of your illness to support the request for an extension, which will only be granted in exceptional circumstances.

Should it become apparent that there are no acceptable reasons for your non-attendance and/or general lack of engagement with your studies, the Department may issue you with a formal warning which can escalate to the termination of your registration at the College. You are strongly advised to read the guidance on the formal warning process and the consequences of receiving such a warning on http://www.royalholloway.ac.uk/ecampus/academicsupport/formalwarnings/formalwarnings.aspx and in the relevant regulations, http://www.royalholloway.ac.uk/ecampus/academicsupport/regulations/home.aspx.

In situations where you are experiencing documented severe difficulties the Department and College will make every effort to support you and counsel you as to the best course of action. However, there may be cases where, although non-attendance is explained by an acceptable reason, your level of attendance falls to a level which compromises educational standards and/or your ability to reach the learning outcomes of the course. In such cases it will be necessary to implement disciplinary procedures as detailed above.

3.3.7 Withdrawal of visa

If you are in receipt of a Tier-4 (General) Student Visa sponsored by Royal Holloway, it is a requirement of your Visa that you attend classes and complete assessments. This is also a requirement of the College’s academic regulations. The College has a legal responsibility to report any student admitted to the College on a student visa who does not appear to be in attendance to UK Visas and Immigration (UKVI). Therefore if you fail to meet UKVI visa requirements and/or fail to respond to informal and formal warnings from the College in this regard you could have your sponsorship withdrawn, your Visa cancelled and your registration with the College terminated. The termination of registration due to a breach in Visa requirements is conducted independently of the College’s formal warning process and the decision is not open to appeal. Please see the College Undergraduate Regulations (http://www.rhul.ac.uk/ecampus/academicsupport/regulations/home.aspx).
3.4 Code of conduct in teaching and learning sessions

This behavioural code of conduct in teaching and learning, stems from a consultation between Student representatives and Academic staff at the School of Biological Sciences. It highlights areas of responsibility by Staff and Students that facilitate academic activity and promote effective learning.

Teaching and learning environments include lectures, practical laboratory classes, seminars and small group tutorials. It is the responsibility of students and academic staff engaged in these activities to create and maintain a cordial and respectful atmosphere conducive to effective learning.

Schedule and Punctuality

1. Lectures are scheduled as 50 minute teaching and learning sessions that should normally commence 5 minutes past the hour (to allow for setting up and distribution of materials where appropriate) and be completed 5 minutes before the hour. With the exception of laboratory classes, double or treble teaching sessions should incorporate a 10 minute break between sessions. Lecturing staff will make every effort to adhere to this schedule.

2. Students should make every effort to arrive before the start of the lecture and to take their places before 5 minutes past the hour.

3. Late arrival at lectures impacts the learning environment and affects all those participating in it. Students arriving after the start of the lecture should enter only if they can do so without disrupting the lecture. Students must make every effort to enter the lecture theatre as discretely as possible to minimize disruption.

4. Students arriving late should only avail themselves of appropriate teaching materials, where appropriate, if these are readily available. Otherwise they should approach the lecturer either at the end of the lecture or in a break.

5. In case of double or treble teaching sessions it may be appropriate for a student who arrives after the start of the lecture to wait for a break to attend the second and/or third teaching session(s). If late arrival is a habitual problem lecturers may ask students not to enter.

6. Lecturing staff generally appreciate apologies for late arrivals, provided these are given after the end of the lecture and not on arrival.
7. Late arrival to laboratory classes must be negotiated in advance with the academic in charge. In most cases however, late arrival to practical classes will not be permitted. This is because those arriving late would have missed relevant instructions regarding health and safety hazards associated with experimental work and could put themselves and other class members in danger.

Conduct during teaching sessions

8. Eating and drinking (except water) in class is not permitted by the College, in compliance with current Health and Safety legislation.

9. Students must not engage in conversation with one another during a lecture or class unless it is part of an organized class activity.

10. When wishing to ask a question or contribute a comment students should draw the lecturer’s attention by putting their hands up.

11. Mobile phones and other electronic devices must be switched off at the beginning of the lecture unless these devices are directly related to the lecture; for instance, laptops for note-taking or authorised recording devices for students registered with the Dyslexia and Disability Services and will not cause disruption to the class.

12. Personal electronic recording of lectures is discouraged and should only be requested for good reason (e.g., specific learning difficulty). Permission to record lectures should be sought in advance from the lecturer in charge.

13. Students are welcome to use laptop computers in class for the purpose of note-taking. Web browsing should only be done as part of an organised class activity. Gaming and social networking in class is prohibited.

14. Students should sign any paper register with their original signature (the one given as sample signature in registration documents). Late arrivals should locate and sign the register in the break or at the end of the lecture. Clickers are assigned to individual students for their personal use, only, and it is the student’s responsibility to bring these to lectures for recording attendance.

Remedial Actions

15. Students are required to treat the learning environment with respect and to adhere to this code of conduct. Lecturing staff will remind individuals of their responsibilities to others as class members when breaches to this code of conduct are identified. In exceptional
circumstances, persistent individuals may be asked to leave.

16. When unacceptable behaviour escapes the attention of lecturing staff, breaches to this code of conduct should be brought to the attention of the lecturer in charge during a break or at the end of a lecture. Lecturing staff will be proactive in reminding individuals to be respectful of the needs of other members of the class.

17. Where lecturing staff fail to adhere to these principles, or if students have other concerns relating to staff teaching or conduct, students can contact the Director of Teaching with details of the incident. The Director of Teaching will raise the matter with the lecturer in charge.
4 Degree Structure

Full details about your programme of study, including, amongst others, the aims, learning outcomes to be achieved on completion, courses which make up the programme and any programme-specific regulations are set out in the programme specification available through: https://www.royalholloway.ac.uk/coursecatalogue/home.aspx or https://www.royalholloway.ac.uk/studyhere/progspecs/home.aspx

4.1 Degree Programmes

**MOLECULAR BIOSCIENCE DEGREES**
- Biochemistry
- Biomedical Sciences
- Medical Biochemistry
- Molecular Biology

**ORGANISMAL BIOSCIENCE DEGREES**
- Biology
- Ecology and the Environment
- Zoology

**MOLECULAR BIOSCIENCE DEGREES**

**C700 Biochemistry** provides a comprehensive coverage of the principles of biochemistry together with a range of more advanced course options dealing with a broad spectrum of modern and topical developments in animal, microbial and plant biochemistry and molecular biology. A good degree of flexibility is possible in the second and final years and you may also select up to one course unit from those offered by other Science departments if timetabling allows, and if agreed by the Head of School in SBS and in the host department.

**B990 Biomedical Sciences.** This degree programme focuses on understanding the biological basis of human disease and is primarily designed for students considering employment in biomedical research. The first year provides a core background in a range of subjects including biochemistry, physiology, cell biology, molecular biology and genetics. In the second and particularly the final year you focus on specialist medical subjects such as the neurosciences, fundamentals of disease diagnostics and the molecular basis of inherited disease.

**C741 Medical Biochemistry** emphasises the importance of biochemistry in medicine, particularly in relation to understanding the molecular basis of disease and how this can lead to the development of novel therapeutic strategies. In addition to the biochemistry core courses, you take core courses in physiology, cell biology and genetics in the first year and the medically-orientated options in the second and final years. These include biochemical aspects of immunology and neurobiology, the molecular basis of inherited disease and embryology.
C701 Molecular Biology emphasizes the essence of the molecular mechanisms that control life processes. A common first year of core units is followed by a selection of optional and additional core courses in molecular biology (including applied aspects of the subject) and biochemistry. In the final year, students take advanced level courses that focus on molecular biology, cell biology, molecular and medical microbiology, human molecular genetics and inherited diseases. You will also have a choice from a selection of final year projects in either biomedical, environmental, microbial or plant sciences in which molecular biology approaches are used.

ORGANISMAL BIOSCIENCES DEGREES

C100 Biology provides a comprehensive coverage of most aspects of biology ranging from the physiological to the ecological. A common first year builds the necessary foundation for more specialist courses in the second and third year. These can be selected to maintain a broad-based degree or to concentrate on areas which are predominantly ecological, physiological, or organismal.

C150 Ecology and the Environment is the study of interactions between plants and animals and their environments. A common first year provides the necessary foundation for a selection of second and third year courses which cover diverse aspects of ecology including both terrestrial and aquatic ecosystems, conservation and behavioural ecology.

C300 Zoology places particular emphasis on the study of animals. Following a common first year which provides basic training in organismal, ecological and physiological aspects of biology, a range of options is available in the second and third years, which cover the diversity and evolution of animals, their adaptations to different life styles and habitats, how they function and their behaviour.
## 4.2 Courses Offered – School of Biological Sciences 2016-17

All first year courses and BS3010 are one unit value (30 credits). All other courses are half unit value (15 credits)

<table>
<thead>
<tr>
<th>COURSE CODE</th>
<th>COURSE NAME</th>
<th>COORDINATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS1030 (1cu)</td>
<td>Principles of Molecular Bioscience</td>
<td>Dr J McEvoy</td>
</tr>
<tr>
<td>BS1040 (1cu)</td>
<td>The Diversity of Life</td>
<td>Dr B Thomas</td>
</tr>
<tr>
<td>BS1050 (1cu)</td>
<td>Ecology: Animal Behaviour to Environmental Conservation</td>
<td>Prof J Koricheva</td>
</tr>
<tr>
<td>BS1060 (1cu)</td>
<td>Living Systems: Animal and Plant Physiology</td>
<td>Dr J Beauchamp</td>
</tr>
<tr>
<td>BS1070 (1cu)</td>
<td>Cell Biology and Genetics</td>
<td>Dr P F Devlin</td>
</tr>
<tr>
<td>BS1090 (1cu)</td>
<td>Biochemistry: The Molecular Basis of Life</td>
<td>Dr W Lucchesi</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
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<tr>
<td>BS2005</td>
<td>Microbiology</td>
<td>Dr S Dissanayeke</td>
</tr>
<tr>
<td>BS2010</td>
<td>Invertebrate Biology: Structure, Behaviour and Evolution</td>
<td>Prof M J F Brown</td>
</tr>
<tr>
<td>BS2020</td>
<td>Plant Life: from Genes to Environment</td>
<td>Dr E López-Juez</td>
</tr>
<tr>
<td>BS2040</td>
<td>Cell Biology</td>
<td>Prof L Bögre</td>
</tr>
<tr>
<td>BS2050</td>
<td>Essential Human Physiology in Health and Disease</td>
<td>Dr J Beauchamp</td>
</tr>
<tr>
<td>BS2060</td>
<td>Developmental Biology</td>
<td>Dr E López-Juez</td>
</tr>
<tr>
<td>BS2090</td>
<td>Insects, Plants and Fungi: Ecology and Applications</td>
<td>Prof A C Gange</td>
</tr>
<tr>
<td>BS2110</td>
<td>Practical Field Ecology</td>
<td>Prof J Koricheva</td>
</tr>
<tr>
<td>BS2120</td>
<td>Biological Data Analysis and Interpretation</td>
<td>Dr S Papworth</td>
</tr>
<tr>
<td>BS2140</td>
<td>Animal Behaviour</td>
<td>Dr S Portugal</td>
</tr>
<tr>
<td>BS2150</td>
<td>Applications of Molecular Genetics in Biology</td>
<td>Dr W Lucchesi</td>
</tr>
<tr>
<td>BS2160</td>
<td>Evolution</td>
<td>Dr F Ubeda de Torres</td>
</tr>
<tr>
<td>BS2001X</td>
<td>Marine Biology</td>
<td>Dr D Morritt</td>
</tr>
<tr>
<td>BS2510</td>
<td>Bioenergetics, Biosynthesis and Metabolic Regulation</td>
<td>Dr J McEvoy</td>
</tr>
<tr>
<td>BS2520</td>
<td>Protein, Structure and Function</td>
<td>Dr M Soloviev</td>
</tr>
<tr>
<td>BS2530</td>
<td>Molecular Biology</td>
<td>Dr C Wilkinson</td>
</tr>
<tr>
<td>BS2540</td>
<td>Molecular and Cellular Immunology</td>
<td>Dr W Lucchesi</td>
</tr>
<tr>
<td>BS2550</td>
<td>Neuronal Cell Signalling</td>
<td>Dr P Alifragis</td>
</tr>
<tr>
<td>BS2560</td>
<td>Pharmacology and Toxicology</td>
<td>Dr P E Chen</td>
</tr>
<tr>
<td>BS2570</td>
<td>Physical Biochemistry for Life Scientists</td>
<td>Dr M Soloviev</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3010 (1cu)</td>
<td>Individual Research Project</td>
<td>Prof M J F Brown</td>
</tr>
<tr>
<td>BS3020</td>
<td>Special Study: Dissertation</td>
<td>Dr M Soloviev/Prof V Jansen</td>
</tr>
<tr>
<td>BS3030</td>
<td>Biology of Parasitic Diseases</td>
<td>Dr J Tovar-Torres</td>
</tr>
<tr>
<td>BS3060</td>
<td>Conservation Biology</td>
<td>Dr S Papworth</td>
</tr>
<tr>
<td>BS3090</td>
<td>Entomology</td>
<td>Prof J Koricheva</td>
</tr>
<tr>
<td>BS3110</td>
<td>Mediterranean Island Conservation and Ecology</td>
<td>Prof M J F Brown</td>
</tr>
<tr>
<td>BS3120</td>
<td>Population and Community Ecology</td>
<td>Prof V Jansen</td>
</tr>
<tr>
<td>BS3160</td>
<td>Behavioural Ecology</td>
<td>Dr R Riesch</td>
</tr>
<tr>
<td>BS3180</td>
<td>Marine Ecology and Biodiversity</td>
<td>Dr D Morritt</td>
</tr>
<tr>
<td>BS3190</td>
<td>Climate Change: plants and the environment</td>
<td>Dr A Devoto</td>
</tr>
<tr>
<td>BS3510</td>
<td>Molecular and Medical Microbiology</td>
<td>Dr S Dissanayeke</td>
</tr>
<tr>
<td>BS3520</td>
<td>Seed Biology</td>
<td>Prof G Leubner</td>
</tr>
<tr>
<td>BS3530</td>
<td>Applications of Advanced Molecular Biology Methods</td>
<td>Prof R S Williams</td>
</tr>
<tr>
<td>BS3540</td>
<td>Cell &amp; Molecular Biology of Cancer</td>
<td>Prof L Bögre</td>
</tr>
<tr>
<td>BS3560</td>
<td>Functional Genomics, Proteomics and Bioinformatics</td>
<td>Dr A Devoto</td>
</tr>
<tr>
<td>BS3570</td>
<td>Human Embryology and Endocrinology</td>
<td>Dr J Murdoch</td>
</tr>
<tr>
<td>BS3580</td>
<td>Cell and Molecular Neuroscience</td>
<td>Dr P Alifragis</td>
</tr>
<tr>
<td>BS3590</td>
<td>Molecular Basis of Inherited Disease</td>
<td>Dr R Yáñez</td>
</tr>
<tr>
<td>BS3595</td>
<td>Clinical Physiology and Medicine</td>
<td>Dr J Murdoch</td>
</tr>
<tr>
<td>BS3600</td>
<td>Clinical Diagnosis of Disease</td>
<td>Prof P Sharma</td>
</tr>
</tbody>
</table>
4.3 Programme outlines

The Programme Specification provides the definitive record of the programme regulations. The Programme Specification for each of the seven degrees offered by the School of Biological Sciences can be found at: https://www.royalholloway.ac.uk/coursecatalogue/home.aspx or https://www.royalholloway.ac.uk/studyhere/progspecs/home.aspx.

The tables over the next few pages provide a summary of the programme structure for each of the seven degrees. The mandatory (core) courses are indicated as the shaded grey boxes; students must take these courses. Optional (non-mandatory) courses are indicated with the O. Students can select from the optional courses, to give a total of four Course Units (120 credits) for each year.
For each degree programme, core/mandatory (shaded box) courses are listed. All courses are taught by the staff of the School of Biological Sciences as detailed in the corresponding course specification documents available in the School’s website under [https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx](https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx)

Each year, students must complete the equivalent of four course units (120 credits).

<table>
<thead>
<tr>
<th>Course Units</th>
<th>Degree Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS1030 (1c.u., 30 credits) Principles of Molecular Bioscience</td>
<td>Biochemistry C700</td>
</tr>
<tr>
<td>BS1060 (1c.u., 30 credits) Living systems: Animal and Plant Physiology</td>
<td>Medical Biochemistry C741</td>
</tr>
<tr>
<td>BS1070 (1c.u., 30 credits) Cell Biology and Genetics</td>
<td>Molecular Biology C701</td>
</tr>
<tr>
<td>BS1090 (1c.u., 30 credits) Biochemistry: The Molecular Basis of Life</td>
<td>Biomedical Sciences B990</td>
</tr>
</tbody>
</table>
The list of mandatory (core, grey shaded box) and non-mandatory (optional, O) courses available for each degree programme is given below. Mandatory courses must be completed in order to qualify for that degree programme. Each course counts as one half-unit. Students should choose sufficient optional courses to give a total of 8 half units for the year, including mandatory courses.

<table>
<thead>
<tr>
<th>Course Unit</th>
<th>Term</th>
<th>Biochemistry C700</th>
<th>Medical Biochemistry C741</th>
<th>Molecular Biology C701</th>
<th>Biomedical Sciences B990</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS2005 Microbiology</td>
<td>T2</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS2020 Plant Life: from Genes to Environment</td>
<td>T2</td>
<td>O</td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2040 Cell Biology</td>
<td>T2</td>
<td>O</td>
<td>O</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>BS2050 Essential Human Physiology in Health and Disease</td>
<td>T1</td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2060 Developmental Biology</td>
<td>T1</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2150 Applications of Molecular Genetics in Biology</td>
<td>T1</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS2160 Evolution</td>
<td>T1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS2510 Bioenergetics, Biosynthesis &amp; Metabolic Regulation</td>
<td>T1&amp;T2</td>
<td></td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2520 Protein Structure &amp; Function</td>
<td>T1</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BS2530 Molecular Biology</td>
<td>T1&amp;T2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS2540 Molecular and Cellular Immunology</td>
<td>T1&amp;T2</td>
<td>O</td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2550 Neuronal and Cellular Signalling</td>
<td>T1&amp;T2</td>
<td>O</td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2560 Pharmacology and Toxicology</td>
<td>T2</td>
<td>O</td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS2570 Physical Biochemistry for Life Scientists</td>
<td>T1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The list of mandatory (core, grey shaded box) and non-mandatory (optional, O) courses for each degree programme is given below. Students on the Biochemistry Programme are expected to take 5 half course units of Biochemistry courses (BS35**, BS3010, BS3020) in their final year. Mandatory courses must be completed in order to qualify for that degree programme. Each course counts as one half-unit, apart from BS3010 which is a whole unit. The BS3010 Individual Research Project is non-condonable, and must be passed in order to graduate with that degree. Students should choose sufficient optional courses to give a total of 8 half units for the year, including mandatory courses.

<table>
<thead>
<tr>
<th>Course Unit</th>
<th>Term</th>
<th>Biochemistry C700</th>
<th>Medical Biochemistry C741</th>
<th>Molecular Biology C701</th>
<th>Biomedical Sciences B990</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS3010 Individual Research Project (1 c.u.)</td>
<td></td>
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</tr>
<tr>
<td>BS3020 Special Study: Dissertation</td>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3030 Biology of Parasitic Disease</td>
<td>T1</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3190 Climate Change: Plants and the Environment</td>
<td>T2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3510 Molecular and Medical Microbiology</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3520 Seed Biology: Molecular &amp; Conservation Biology to Industrial Appns</td>
<td>T1</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3530 Applications of Advanced Molecular Biology Methods</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>BS3540 Cell &amp; Molecular Biology of Cancer</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3560 Functional Genomics, Proteomics &amp; Bioinformatics</td>
<td>T1 &amp; T2</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>BS3570 Human Embryology and Endocrinology</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BS3580 Cell &amp; Molecular Neuroscience</td>
<td>T1 &amp; T2</td>
<td>O</td>
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<tr>
<td>BS3590 Molecular Basis of Inherited Disease</td>
<td>T1</td>
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<tr>
<td>BS3595 Clinical Physiology and Medicine</td>
<td>T2</td>
<td></td>
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<tr>
<td>BS3600 Clinical Diagnosis of Disease</td>
<td>T2</td>
<td></td>
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</table>
For each degree programme, mandatory (shaded box) courses are listed. All course specification documents are available in the School’s website under https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx

Each year, students must complete the equivalent of four course units.

**Mandatory courses:** These must be completed in order to qualify for that degree programme.

<table>
<thead>
<tr>
<th>Course Unit</th>
<th>Degree Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Biology C100</td>
</tr>
<tr>
<td></td>
<td>Zoology C300</td>
</tr>
<tr>
<td></td>
<td>Ecology &amp; the Environment C150</td>
</tr>
<tr>
<td>BS1040 The Diversity of Life</td>
<td></td>
</tr>
<tr>
<td>BS1050 Ecology: Animal Behaviour to Environmental Conservation</td>
<td></td>
</tr>
<tr>
<td>BS1060 Living Systems: Animal and Plant Physiology</td>
<td></td>
</tr>
<tr>
<td>BS1070 Cell Biology and Genetics</td>
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</tbody>
</table>
The list of mandatory (core, grey shaded box) and non-mandatory (optional, O) courses available for each degree programme is given below. Mandatory courses must be completed in order to qualify for that degree programme. Each course counts as one half-unit. Students should choose sufficient optional courses to give a total of 8 half units for the year, including mandatory courses.

<table>
<thead>
<tr>
<th>Course Unit</th>
<th>Term</th>
<th>Biology C100</th>
<th>Zoology C300</th>
<th>Ecology &amp; the Environment C150</th>
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</thead>
<tbody>
<tr>
<td>BS2005 Microbiology</td>
<td>T2</td>
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<tr>
<td>BS2010 Invertebrate Biology: Structure, Behaviour and Evolution</td>
<td>T1</td>
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<td></td>
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</tr>
<tr>
<td>BS2020 Plant Life: From Genes to Environment</td>
<td>T2</td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2040 Cell Biology</td>
<td>T2</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2050 Essential Human Physiology in Health and Disease</td>
<td>T1</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2060 Developmental Biology</td>
<td>T1</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2090 Insect, Plants and Fungi: Ecology &amp; Applications</td>
<td>T2</td>
<td>O</td>
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</tr>
<tr>
<td>BS2110 Practical Field Ecology (Term 3 of first year)</td>
<td>T3 of Y1</td>
<td>O</td>
<td>O</td>
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<tr>
<td>BS2120 Biological Data Analysis and Interpretation</td>
<td>T1</td>
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<tr>
<td>BS2140 Animal Behaviour</td>
<td>T2</td>
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<tr>
<td>BS2150 Applications of Molecular Genetics in Biology</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>BS2160 Evolution</td>
<td>T1?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS2001X Marine Biology (summer vacation between Y2 and Y3)</td>
<td>summer</td>
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<td>O</td>
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</tr>
<tr>
<td>BS2530 Molecular Biology</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS2540 Molecular and Cellular Immunology</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
</tbody>
</table>
The list of mandatory (core, grey shaded box) and non-mandatory (optional, O) courses for each degree programme is given below. Mandatory courses must be completed in order to qualify for that degree programme. Each course counts as one half-unit, apart from BS3010 which is a whole unit. The BS3010 Individual Research Project is non-condonable, and must be passed in order to graduate with that degree. Students should choose sufficient optional courses to give a total of 8 half units for the year, including mandatory courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Term</th>
<th>Biology C100</th>
<th>Zoology C300</th>
<th>Ecology &amp; the Environment C150</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS3010 Individual Research Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3020 Special Study: Dissertation</td>
<td>T1</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3030 Biology of Parasitic Diseases</td>
<td>T1</td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS3060 Conservation Biology</td>
<td>T2</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3090 Entomology: Pure and Applied</td>
<td>T1</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3110 Mediterranean Island Conservation and Ecology Field Course</td>
<td>T3 of Y2</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3120 Population and Community Ecology</td>
<td>T1</td>
<td>O</td>
<td>O</td>
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</tr>
<tr>
<td>BS3160 Behavioural Ecology</td>
<td>T2</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3180 Marine Ecology and Biodiversity</td>
<td>T2</td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3190 Climate Change: plants and the environment</td>
<td>T2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3510 Molecular and Medical Microbiology</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3520 Seed Biology: Molecular &amp; Conservation Biology to Industrial Appns</td>
<td>T1</td>
<td>O</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>BS3530 Applications of Advanced Molecular Biology Methods</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>BS3540 Cell &amp; Molecular Biology of Cancer</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>BS3570 Human Embryology and Endocrinology</td>
<td>T1 &amp; T2</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>GG3017 Conservation Biogeography (subject to timetable compatibility)</td>
<td>T2</td>
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</tr>
<tr>
<td>GG3046 Mammals in a Changing World (subject to timetable compatibility)</td>
<td>T1</td>
<td></td>
<td></td>
<td>O</td>
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</tbody>
</table>
4.4 Important notes on the requirements for award of specific degrees

The award of degrees in Biological Sciences subjects is initially considered by the Sub-Board of Examiners in Biological Sciences who recommend awards to the College Board of Examiners. The following are the general requirements for award of a specific degree title.

All students must complete designated mandatory first, second and third year courses, as prescribed, and select additional optional courses to fulfil the requirement of 4 course units (120 credits) each year. The available optional courses are dependent on the degree stream, and may be further restricted by timetabling limitations. It is the student's responsibility to ensure their chosen course options are compatible, within the timetable, particularly when selecting courses from outside the School. While every effort is made to reduce timetabling conflicts, some may remain.

The regulations for the award of degrees are published by the College and in the College Undergraduate Regulations which can be downloaded from https://www.royaltholloway.ac.uk/ecampus/academicsupport/regulations/home.aspx#tabbedareaA
4.5 Course Outlines

FIRST YEAR COURSES

BS1030 – Principles of Molecular Bioscience – Dr J McEvoy
The goal of this course is to provide the students with a sound knowledge of fundamental chemistry essential to the proper understanding of life processes and laboratory experiments. By the end of the course students should understand the concept of chemical bond and intermolecular interactions in a biological context, appreciate the role of energy in chemical and biochemical changes, comprehend concepts of chemical equilibrium and reaction rate, consolidate their knowledge of acid-base phenomena in aqueous solutions, particularly with respect to amino acids and peptides, appreciate the relationship between structure and function in biology, understand the principles of biological reaction mechanisms, interpret UV/visible and IR spectroscopic information, improve and extend laboratory skills in making careful, quantitative measurements and carry out consequent calculations, and, be able to carry out, record and interpret chemical and physical manipulations on organic substances.

Value - One course unit
Suitable - 1st year
Available - 1st term
On - Monday (all day) and Tuesday (all day)
Prerequisites - A2 Level Chemistry or equivalent

BS1040 – The Diversity of Life – Dr B Thomas
The course provides an introduction to the five Kingdoms of living organisms. A broad introduction to evolution and natural selection will lead into an evolutionary approach to the classification of organisms, and an introduction to bioinformatics. The development of life cycles and evolution of reproductive strategies and transport systems will provide a common theme throughout the course. The special features of the main groups will be examined, particularly with respect to functional anatomy, ecological success and species diversity. A number of themes will be explored in groups of lectures, including relevance of groups of organisms to man and the influence of man on biodiversity. Practicals will include handling of preserved (and live) specimens, preparation of taxonomic keys, drawing, data analysis and presentation. Demonstrations will be used to illustrate the diversity of different groups.

Value - One course unit
Suitable - 1st year
Available - 1st term and 2nd term
On - Thursday (all day)
Prerequisites - A2 Level Biology or equivalent
BS1050 – Ecology: Animal Behaviour to Environmental Conservation – Prof J Koricheva

This course provides an introductory understanding of some of the principles of ecology, ranging from biodiversity conservation to animal behaviour. Students are introduced to key UK habitats, the adaptations of organisms to the problems of living in such environments and the interactions between the organisms themselves, as well as fostering an understanding of ecological methods. Practical skills related to sampling techniques, biostatistical analyses and experimental design are taught as part of the major ecological themes. The course applies a “top-down” approach, from biomes to individuals, covering seven major themes: biogeochemical processes; British ecosystems; community ecology; population ecology; evolutionary and molecular ecology; ecophysiology; current ecological issues; and, behavioural ecology.

- Value: One course unit
- Suitable: 1st year
- Available: 1st term and 2nd term
- On: 1st term: Tuesday (all day), 2nd term: Monday (all day)
- Prerequisites: A2 Level Biology or equivalent

BS1060 – Living Systems: Animal and Plant Physiology – Dr J Beauchamp

This course explores fundamental physiological processes required for communication, obtaining and distributing nutrients and maintaining the internal environment within multicellular organisms. The course begins with the principles of physiology, focussed on mammals. It covers the structure and function of the nervous system, with examples of how animals sense and respond to the external environment and control movement. This is followed by an overview of circulatory systems and how they integrate with respiratory systems and the kidneys to maintain an appropriate internal environment for cellular function. The role of the circulatory system in communication through hormonal signalling and the interface with the nervous system is introduced. The structure and function of the digestive tract to enable animals to obtain nutrients to generate the energy required for life. The second part of the course discusses the growth and development of plants, the principle source of energy and nutrients for many animals. The course covers the transport of material within plants and regulation of plant development. Man’s influence on the improvement of plant quality and yield will also be considered.

- Value: One course unit
- Suitable: 1st year
- Available: 2nd term
- On: Tuesday and Friday (all day)
- Prerequisites: A2 Level Biology or equivalent

BS1070 – Cell Biology and Genetics – Dr P Devlin

Cell biology focuses on the structure and function of prokaryotic and
eukaryotic cells. The origin of life is considered, and the diversity of microbes is investigated. The course explores cell subcellular organisation and the relationship between the structure and function of the main organelles. This course also incorporates essential numeracy skills for biological scientists which includes consideration of hypothesis testing, experimental design and basic statistical comparisons.

**Genetics** covers the structure and organisation of: chromosomes, mitosis, meiosis and recombination, the structure and inheritance of DNA, transcription, translation, regulation of gene expression, the organisation of prokaryotic and eukaryotic genomes, and techniques and applications of recombinant DNA technology.

**Value** - One course unit  
**Suitable** - 1st year  
**Available** - 1st term  
**On** - Wednesday (all morning) and Friday (all day)  
**Prerequisites** - A2 Level Biology or equivalent

**BS1090 – Biochemistry: The Molecular Basis of Life – Dr W Lucchesi**

This course will provide a general understanding of the main concepts of classic biochemistry (protein structure/function, kinetics and metabolism) combined with a knowledge of the modern applications to industry and diagnostics. Topics covered include biochemistry methods focusing on techniques with applications in diagnosis and research; enzyme function, enzyme kinetics and regulation of enzyme activity; metabolism and metabolic energy; biosynthesis of metabolic fuels and natural products.

**Value** - One course unit  
**Suitable** - 1st year  
**Available** - 2nd term  
**On** - Monday (all day); Tue (all day); Thu (morning)  
**Prerequisites** - A2 Level Chemistry or equivalent

Course unit specifications can also be found at:

https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx
SECOND YEAR COURSES

BS2005 – Microbiology – Dr S Dissanayeke
The course aims to introduce key concepts in microbiology, which encompasses studies in bacteria, viruses, and eukaryotic microbes. The historical milestones in this field of research will be considered, as well as the background of the important methodologies used in microbiology research. The course will include information on how microbes are classified, and how the different types of microbes are distinguished. We will discuss bacterial growth and differentiation, including genetic regulation. The course will explain the importance of microorganisms in health and disease, including human welfare issues such as opportunistic infections and the role of microorganisms in cancer. We will also consider how microorganisms can be used in research. This course is an essential prerequisite for the third year course BS3510 Molecular and Medical Microbiology

Value - Half course unit
Suitable - 2nd year
Available - 2nd term
On - Tuesday
Prerequisites - BS1070

BS2010 – Invertebrate Biology: Structure, Behaviour and Evolution – Prof M J F Brown
The course involves a broad and in-depth study of the invertebrate phyla. The main focus will be on understanding body-plans, how structure relates to behaviour, and evolutionary relationships. The course will also examine invertebrate diversity and ecological importance. The practicals are an integral part of the course, and are designed to introduce techniques relevant to the study of invertebrates. These include experiments, dissection, microscopy, and preparation of whole mounts and staining sections for microscopical study.

Value - Half course unit
Suitable - 2nd year
Available - 1st term
On - Thursday
Prerequisites - None

BS2020 – Plant Life: from Genes to Environment – Dr E López-Juez
The course examines primarily the most advanced (flowering) plants, their evolution, developmental and functional biology. In part one, the origin and diversification of flowering plants is discussed, as it is reflected in their reproductive biology. In the second part the ‘building’ of a plant is analysed, with reference to the meristems, pools of ‘stem cells’ in which it primarily takes place. Part three reviews mechanisms by which the photosynthetic apparatus adapts to current light conditions or to water/CO₂ availability. Part four examines some case studies of the role
and mode of action of plant hormones. Part five reviews plant environmental sensors of abiotic and biotic factors, key to adapt plant development and behaviour to the prevailing conditions. The mode of action of such sensors, and the responses that they evoke, are discussed. Part six touches upon plants in the context of their domestication ("accelerated evolution") in the hands of humans and in relation to global environmental change, the impact it has on plants and of the role plants can play in reducing it.

Value - Half course unit
Suitable - 2nd year
Available - 2nd term
On - Monday (all day)
Prerequisites - BS1040 or BS1050

BS2040 – Cell Biology – Prof L Bögre
The course will focus on the following key areas of modern cell biology: cell cycle, cell growth and differentiation, apoptosis, cell senescence, cell polarity, cell shape and cell motility, organelle origin and functions. The course will provide theoretical knowledge in modern cell biology methods, including microscopy and live cell imaging. The course will introduce basic concepts on evolutionary constraints in cellular functions and links between cellular functions and development.

Value - Half course unit
Suitable - 2nd year
Available - 2nd term
On - Tuesday (all day) & Friday
Prerequisites - BS1060

BS2050 – Essential Human Physiology in Health and Disease – Dr J Beauchamp
The course will focus on the functions and integration of selected human physiological systems and how these are disrupted by disease. **The endocrine system:** The thyroid gland will be used to explain the role of the hypothalamo-pituitary axis, feedback loops and multi-system response; the stress response to illustrate endocrine and nervous system integration in long- and short-term physiological response. How hormonal and neural signals integrate to regulate gastrointestinal activity, secretion and transit to ensure efficient digestion, and then to maintain blood glucose homeostasis in the absorptive and postabsorptive states will be discussed. **Skeletal muscle:** The specialised structure of the skeletal muscle cell and the molecular basis of contraction will be discussed, including excitation-contraction coupling, the role of Ca²⁺, cross-bridge cycling, tetanic contraction and fibre types. Aspects of nerve/muscle communication including the neuromuscular junction, Golgi tendon organs and spindles will be covered, together with the significance of motor units and recruitment for whole muscle function.
Cardiovascular system: The structure and function of cardiac muscle will be covered together with aspects of cardiovascular physiology including cardiac output and the control of arterial pressure, together with cardiac failure, arrhythmia and cardiomyopathy. The composition of blood will be discussed, including examples of blood disorders along with the haemostatic mechanisms that prevent blood loss following vessel damage.

The respiratory system: This topic will include respiratory surfaces and surfactant, the mechanics of respiration and gas exchange and the integration of respiration and cardiovascular output.

Value:
- Half course unit
Suitable:
- 2nd year
Available:
- 1st term
On:
- Monday (all day)
Prerequisites:
- BS1060

BS2060 – Developmental Biology – Dr E López-Juez
Multicellularity has allowed living things to achieve levels of complexity and sophistication impossible at the single cell level. This course will explore the mechanisms by which zygotes establish or make use of basic body plan axes, and how subsequent cellular differentiation and interaction is achieved and results in the variety of tissues and organs that build an animal body. The course will focus on model organisms in which both embryological and genetic approaches have been developed, and will explore axis establishment, segmentation, cellular differentiation, organ development, and the widely-shared signalling pathways that underpin them.

Value:
- Half course unit
Suitable:
- 2nd year
Available:
- 1st Term
On:
- Tuesday and Friday
Prerequisites:
- BS1060

BS2090 – Insects, Plants and Fungi: Ecology and Applications – Prof A C Gange
The main aim of this course is to demonstrate the beneficial and detrimental effects of insects and fungi on their plant hosts. A second aim is to demonstrate that plants are not discrete entities, but instead are dynamic ecosystems in which fungi and insects interact with each other to influence plant performance. A particular aspect will be the illustration of how these interactions are important in applied situations, such as biological pest and weed control, agronomy and crop science. Emphasis will be placed on practical work that will teach a range of transferable skills. The course will cover the effects of herbivorous insects on plants and the ways in which plants defend themselves against attack. Beneficial effects such as pollination will also be addressed. The ecology of fungi pathogenic on insects and plants will be covered as
well as fungi that are beneficial to plants (endophytes and mycorrhizas).

**BS2110 – Practical Field Ecology – Prof J Koricheva**
The course covers the design and analysis of ecological experiments, including field sampling techniques. Emphasis will be placed on the difficulties of designing experiments in the field, compared to controlled conditions. Building on courses in the first year, it will provide an opportunity to design and perform simple investigations into several different taxonomic groups such as mammals, invertebrates and plants. The practical work aims to teach skills such as identification using keys, field sampling, quantitative population estimation and analysis.

**Value** - Half course unit
**Suitable** - 2nd year
**Available** - 2nd term
**On** - Thursday (all day)
**Prerequisites** - None

**BS2120 – Biological Data Analysis and Interpretation – Dr S Papworth**
This course provides an introduction to the use of statistical methods in biological sciences. Emphasis is placed on understanding how questions in biology can be answered quantitatively using statistics. The most important and widely used descriptive, associative and comparative statistical tests are illustrated, especially how and when they can be used. Key concepts of statistical sampling and experimental design in biology are introduced. Exercises give students hands-on experience of using statistical techniques.

**Value** - Half course unit
**Suitable** - 2nd year
**Available** - 3rd term of Year 1
**On** - 10 days in May, after the first year examinations
**Prerequisites** - BS1050

**BS2140 – Animal Behaviour – Dr S Portugal**
The course demonstrates the great variety of behaviour occurring across the range of animal taxa and in different ecological situations. The course outlines the major theories that seek to explain animal behaviour, such as kin selection, optimal foraging and game theory. In-depth case studies will be used to illustrate the advantages of the main methods used to study behaviour, and how they can be applied to studying different types of behavioural questions.

**Value** - Half course unit
**Suitable** - 2nd year
BS2150 – Applications of Molecular Genetics in Biology – Dr W Lucchesi
This course outlines the molecular tools currently available for the exploration of genetic diversity in a range of organisms, and for the genetic manipulation of micro-organisms, plants, and animals. The course also describes how genetically modified, transgenic organisms can be produced by a variety of transformation methodologies. Examples of the application of molecular genetic strategies in basic biological and biomedical research and in areas as diverse as crop improvement, pest management, vaccine development, microbial evolution, human inherited disease and cancer are presented and discussed.

Value - Half course unit
Suitable - 2nd year
Available - 1st term
On - Friday (all day)
Prerequisites - BS1070

BS2160 – Evolution – Dr F Ubeda de Torres
Evolution is the study of how the genotypic and phenotypic composition of populations changes through time. This course covers the foundation of evolutionary biology and the mechanisms that have shaped organisms since life began. How the evolutionary synthesis came to be; the origin of variation; the allelic composition of a population and how different processes, including natural selection, modify this composition; and adaptation. These topics lead to considering of how we can study evolution using phylogenetic methods. Finally, the mechanisms of speciation; and human evolution.

Value - Half course unit
Suitable - 2nd year
Available - 1st term
On - Tuesday
Prerequisites - None

BS2001X (MB1) – Marine Biology – Dr D Morritt
The course exposes students, first-hand, to the broadest possible range of marine taxa, especially invertebrates, but including vertebrates and algae, sampled alive from their natural habitats. Practical work includes intertidal sampling (rocky shores and sandy shores) and sampling from a research vessel (plankton and subtidal benthos). On site lectures underpin the practical sessions and the course considers behavioural, ecological and physiological aspects, morphological adaptations, systematic relationships and also the economic significance of selected groups. Students acquire skills in identification and the presentation of
written work. Group project work will develop interpersonal skills, including organisation, leadership and oral presentation. The inclusion of an element of self-assessment will further foster critical abilities. Students are expected to cover their travel and accommodation costs (likely to be around £380, although costs are still to be confirmed).

Value - Half course unit
Suitable - 2nd year
Available - Late summer vacation between years 2 & 3 (counts as year 2 course). Course details subject to confirmation.
Prerequisites - BS2010

BS2510 – Bioenergetics, Biosynthesis and Metabolic Regulation – Dr J McEvoy
This course builds upon the knowledge and understanding of cellular metabolism gained in the first year biochemistry course, in the areas of cellular oxidation, bioenergetics, biosynthesis and the regulation of metabolic pathways. Topics include: basic bioenergetics and respiratory electron transport, including concepts of oxidative phosphorylation and chemiosmotic theory; proton-translocating ATPase; structure and function of the respiratory chain. Topics on biosynthetic pathways and their regulation, covering sugar nucleotides, storage polysaccharides, amino sugars and glycoproteins; the regulation of carbohydrate metabolism (including caloric homeostasis); the distribution and biosynthesis of isoprenoids, cholesterol, lipids and fat soluble vitamins; protein prenylation and glycosylation.

Value - Half course unit
Suitable - 2nd year
Available - 1st and 2nd terms
On - 1st term; Thursday, 2nd term; Wednesday
Prerequisites - BS1090

BS2520 – Protein Structure and Function – Dr M Soloviev
The course covers the principles of protein structure, including secondary structure, motifs and domains, and protein folding in vivo. Methods for separation, purification, detection, and structural and functional analysis of proteins are considered. The course also considers protein-protein interaction, and the principles of protein engineering and design. The mechanisms of enzyme catalysis and regulation are considered, with specific examples. The coursework involves the prediction of structure and function of an unknown protein sequence using informatics tools, and the practical class will provide experience in using fundamental techniques in protein separation with SDS-PAGE and Western blotting.

Value - Half course unit
Suitable - 2nd year
Available - 1st term
On - 1st term, Wednesday
Prerequisites - BS1090
BS2530 – Molecular Biology – Dr C Wilkinson
The course covers the physical and chemical structure of DNA, recombinant DNA technology, DNA replication, gene organisation and structure, and RNA and protein synthesis. The laboratory experiments cover a range of molecular biology techniques based on the theme of gene characterisation. The course also includes sessions in numeracy for molecular biologists and statistical skills.

Value: - Half course unit
Suitable: - 2nd year
Available: - 1st term and 2nd term
On: - Tuesday (term 1) and Thursday (term 2)
Prerequisites: - BS1070 or BS1090

BS2540 – Molecular and Cellular Immunology – Dr W Lucchesi
This course examines the specific immune system at the molecular level, dealing with the structure and function of the soluble and cell surface proteins involved. Subjects include: the immune response and acquired immunity; antibody structure and function; antibody diversity and clonal selection; genetics of immunoglobulin expression; the complement system; antibody techniques; monoclonal antibodies; hypersensitivity reactions (allergies); the activity of T cells; major histocompatibility complexes, their role in transplant rejection and non-self-recognition; and, HIV and AIDS.

Value: - Half course unit
Suitable: - 2nd year
Available: - 1st and 2nd term
On: - 1st Term: Tuesday, 2nd Term: Wednesday
Prerequisites: - BS1090

BS2550 – Neuronal and Cellular Signalling – Dr P Alifragis
The first part of this course covers the principles of signalling in the nervous system, including electrical signalling along neurons and synaptic transmission. Different types of neurotransmitters will be considered and their receptors and intracellular signal transduction pathways will be studied. We will study the role and action of Acetylcholine, GABA and glutamate. The role of voltage-gated and ligand-gated ion channels will be discussed, including the role of potassium and calcium ion channels. The second term of the course will focus on cellular signalling, from the outside of the cell (membrane receptors), to key intracellular mechanisms. These will include kinase (and phosphatase) activity, the second messengers small GTPases and heterotrimeric G proteins, cAMP, calcium and two important families of inositol containing compounds. Examples of disease related signalling will be highlighted throughout. Finally the course will introduce a range of model systems for neuroscience research.

Value: - Half course unit
BS2560 – Pharmacology and Toxicology – Dr P E Chen
This course aims to explain the chemical, physiological and biochemical factors which influence the efficacy of drugs. The course also considers the mechanism of action of selected major classes of drug and the toxicity of selected groups of chemicals. Topics covered include: drug-receptor interactions and the principal methods for receptor identification and characterisation, routes of administration of drugs, physico-chemical and physiological aspects of drug absorption and distribution, pathways of drug metabolism and excretion, renal clearance and ultra-filtration, mechanism of action of the major classes of analgesic and anti-depressant drugs, principles of toxicology and major mechanisms of free radical induced tissue damage, pharmacology of the autonomic nervous system and the neuromuscular junction, general and local anaesthetic agents.
Value - Half course unit
Suitable - 2nd year
Available - 2nd term
On - Monday
Prerequisites - BS1030 and BS1060

BS2570 – Physical Biochemistry for Life Scientists – Dr M Soloviev
This course aims to provide the theoretical basis and examples of applications of physical methods for the study of biological molecules. The course will also extend laboratory skills and broaden experience in a range of related techniques of importance in biochemical work. The course considers the behaviour of biological macromolecules in solution. Topics covered include electronic spectroscopy methods such as fluorescence, phosphorescence and circular dichroism; mass spectrometry and its application to studies of biological macromolecules; MS, MS-MS, quantitative MS; Surface Plasmon Resonance, interferometry and biocalorimetry; scanning force microscopy and introduction to nanobiotechnology.
Value - Half course unit
Suitable - 2nd year
Available - 1st term
On - Monday
Prerequisites - BS1030

Course unit specifications can also be found at: https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx
THIRD YEAR COURSES

BS3010 – Individual Research Project – Prof M J F Brown
This is an individual practical or theoretical investigation, supervised by an appropriate member of staff, who will provide guidance both before starting and during the course of your work. The research will be carried out during the Summer (post-2nd year exams), Autumn and Spring terms. Students will attend a project training day after 2nd year exams. In addition, students are expected to attend the School Seminar Series (~15 1-hour seminars from external scientists), to gain a broader scientific context for the work and develop presentational skills, and 3rd year tutorials (5 x 1-hour sessions), which will enable them to maximise the value of the transferable skills gained from their project work and thus enhance their future career. The work is assessed by means of a report submitted either at the end of either the first or second term in the third year. Students will have been allocated to supervisors on the basis of the student’s expressed research preferences, their 2nd year exam results and staff availability, and then research topics will be decided in consultation between the student and staff concerned before commencement of the project. In some cases students may have designed their own research project. Students will present a word-processed report (not exceeding 8,000 words exclusive of references) that will contribute 75% of the mark. 15% will be a continuous assessment mark awarded for performance, by the supervisor. Students will also give a 15 minute oral presentation on their project that will contribute 10% of the mark. Oral presentations will be given in Reading Week of Term 2 (for students who handed in projects at the end of Term 1) or the week after 3rd year exams (for all others).

Value - One course unit
Suitable - 3rd year
Available - Summer vacation after 2nd year and 1st term; or 1st and 2nd term, 3rd year
Prerequisites - As specified for individual projects in the BS3010 Handbook

BS3020 – Special Study: Dissertation – Dr M Soloviev/Prof V Jansen
A literature research project on a biological or biochemical topic of the student’s choice, acceptable to the School of Biological Sciences and appropriate to the student’s degree programme. The resulting word-processed and bound report should be at least 5,000 but not more than 7,500 words, with some 20-40 references and appropriate figures or diagrams. Students will exercise and develop their skills in critically evaluating the recent scientific literature on a topic of their choice. The exploration of the literature will enable them to see the manner in which scientific understanding is advanced by obtaining data that is used to generate and test hypotheses. The student, in preparing a detailed written report, is presented with an opportunity to improve their
presentation skills. Candidates will be required to submit their work through the plagiarism detection software, Turnitin.

**Value** - Half course unit  
**Suitable** - 3rd year  
**Available** - 1st and 2nd term of 3rd year  
**Prerequisites** - None, but subject choice must be appropriate to student’s degree programme

**BS3030 – Biology of Parasitic Diseases – Dr J Tovar-Torres**
This course explores the principles of parasitism and the protective mechanisms employed by immuno-competent hosts to limit the spread of infection. It outlines the biological strategies used by a range of unicellular and multicellular organisms to colonise its host causing disease in human and non-human hosts. Case studies on the pathology and the cellular immunity elicited by various parasites are explored. The immune evasion strategies used by widely distributed human parasites to protect themselves from immune attack are also reviewed. The principles and prospects of anti-parasitic vaccination in the 21st century are presented and discussed.

**Value** - Half course unit  
**Suitable** - 3rd year  
**Available** - 1st term  
**On** - Tuesday  
**Prerequisites** - BS2005 or BS2150 or BS2530

**BS3060 – Conservation Biology – Dr S Papworth**
The course covers the biological basis of the great threats to biodiversity – habitat loss and fragmentation, intensive agriculture, over-harvesting and natural resource exploitation, alien species, disease and global climate change – and the approaches developed by conservation biologists to overcome these threats at local and global scales. The potential for subjectivity in conservation decision-making and the crucial importance of science-based conservation is stressed. Practical work is part of the assessment and involves writing an invasive species management plan.

**Value** - Half course unit  
**Suitable** - 3rd year  
**Available** - 2nd term  
**On** - Friday  
**Prerequisites** - BS1040

**BS3090 – Entomology: Pure and Applied – Prof J Koricheva**
The course aims to provide students with a sound understanding of insect biology, addressing aspects of their physiology and biology. Insects are the most numerous animals on the planet and the basic information will enable students to appreciate why this is so. Insects are of conservation importance and part of the course will focus on beneficial insects such
as pollinators and saproxylic (dead wood feeding) species and focus on the reasons for their decline. The course also aims to introduce students to practitioners in entomology, showcasing research at the School, CABI and Rothamsted Research. The final aim of the course is to improve students’ communication skills. Students will improve their verbal skills through the making of a podcast and their written skills through the production of an information leaflet for the general public.

**Value** - Half course unit

**Suitable** - 3rd year

**Available** - 1st term

**On** - Thursday

**Prerequisites** - BS2010

**BS3110 – Mediterranean Island Conservation and Ecology Field Course**

- **Prof M J F Brown**

The course exposes students to the ecology of the Greek island of Samos, and the work of the main Greek conservation NGO (Archipelago). This will involve conservation ecology in marine and terrestrial ecosystems, with a focus on key species and habitats. Practical work includes (i) sea grass monitoring (using snorkelling), (ii) bird monitoring, (iii) plankton sampling, micro-plastic sampling and oceanography, on a research vessel, (iv) golden jackal monitoring (camera traps, playback techniques), (v) invertebrate monitoring (pollinator surveys, pitfall traps), (vi) chameleon monitoring (nocturnal surveys). On-site lectures underpin the practical sessions and the course considers behavioural, conservation, and ecological aspects, and the relationship of conservation to policy and local knowledge. Students acquire skills in identification, monitoring, research project development, oral presentations, and the presentation of written work. Group project work will develop interpersonal skills, including organisation, leadership and oral presentation. The inclusion of an element of self-assessment will further foster critical abilities. Estimated costs are around £650 per student. This course runs in term 3 of year 2, but counts towards year 3.

**Value** - Half course unit, counts as Y3 course

**Suitable** - 3rd year

**Available** - 3rd term of Y2

**On** - Last week of May/first week of June, after Y2 exams

**Prerequisites** - BS2110

**BS3120 – Population and Community Ecology – Prof V Jansen**

The course aims to explain the principles of population and community ecology, using examples from animal and plant assemblages. It focuses on population growth, inter- and intra-specific competition, trophic relations and the factors which regulate populations. The ecological processes that contribute to community organisation, such as food web structure, body size, succession and natural disturbances are considered. The role of population and community ecology in the maintenance of
biodiversity are emphasised. A proposal writing exercise and assignments, which will involve the use of computer simulations, are included.

Value - Half course unit
Suitable - 3rd year
Available - 1st term
On - Friday
Prerequisites - None

BS3160 – Behavioural Ecology – Dr R Riesch
The course demonstrates how the behaviour of animals can be explained in an ecological and evolutionary framework. The emphasis is upon functional and evolutionary hypotheses and testing models that seek to explain how animals find and use key resources (such as food, breeding territories, mates etc).

Value - Half course unit
Suitable - 3rd year
Available - 2nd term
On - Thursday
Prerequisites - BS2140

BS3180 – Marine Ecology and Biodiversity – Dr D Morritt
The course will begin with a brief introduction to the marine environment and oceanography. Following on from this a number of topical subjects will be used to illustrate recent developments in the field of marine ecology. The biodiversity and biogeography in the marine environment will be illustrated with reference to selected habitats, namely coral reefs and the deep ocean. The biology of the deep ocean, in particular the biology of mid-water and hydrothermal vent communities, will include consideration of technological advances in deep ocean exploration. This theme will be developed further in lectures on tracking studies, behaviour and conservation of marine megafauna, e.g. sharks, sea birds and marine mammals. The topical issues of marine pollution (including plastics pollution), ocean acidification and global climate change will be considered with respect to effects on marine biodiversity. Topicality is also maintained during coursework: pairs of students prepare a poster based on a recently published paper from a highly rated marine biological journal.

Value - Half course unit
Suitable - 3rd year
Available - 2nd term
On - Wednesday
Prerequisites - Recommended BS2001X (MB1)

BS3190 – Climate Change: Plants and the Environment – Dr A Devoto
The course will give an advanced treatment of the effect of global climate change on the interaction between plants and the environment
and will provide new opportunities to consider at various levels (ecological, physiological and molecular) the reaction of plants to environmental changes. Topics include a historical perspective on plants and humanity, microbial science and crop improvement.

Value - Half course unit
Suitable - 3rd Year
Available - 2nd Term
On - Tuesday
Prerequisites - BS1060

BS3510 – Molecular and Medical Microbiology – Dr S Dissanayake
This course will cover advanced aspects in molecular microbiology with particular reference to bacteria and pathogenic eukaryotes. Topics include pathogen mechanisms for infection, the host immune response to infection, vaccine development, gastrointestinal health and disease, resistance to antibiotics, anti-parasite chemotherapy and the genetic and biochemical validation of parasite drug targets in the kinetoplastidae.

Value - Half course unit
Suitable - 3rd year
Available - 1st and 2nd terms
On - 1st term: Thursday, 2nd term: Friday
Prerequisites - BS1070 and BS2005; BS2540 recommended

BS3520 – Seed Biology: From Molecular & Conservation Biology to Industrial Applications - Prof G Leubner
This course provides a comprehensive insight into the scientific understanding of plant seeds and fruits, in all aspects, pure and applied, from molecular biology to ecology. Plant seeds and fruits are of central importance to human existence as they constitute the beginning and the end of most food supply chains (food security and sustainability). They are the delivery systems of agricultural biotechnology and a cornerstone of ecosystem conservation (seed banking). Topics of the lectures include a solid introduction into the fundamental processes of seed development and food reserve deposition, germination and reserve mobilisation, as well as the utilisation of seeds for molecular pharming. The evolution of the seed habit and the biomolecular paleobotany of fossil seeds focus on the key advantages and diversity of seeds and fruits which evolved in interaction with climate change. The morphological diversity of seeds and fruits includes a one-day visit and practical at Kew’s Millennium Seed Bank. This is followed by the biophysics of seed dispersal and the developmental biomechanics of seed fibres and seed germination. Further topics include the molecular mechanisms underlying seed dormancy, germination and persistence in the soil bank, and their environmental control including by abiotic and biotic stress factors. The course also covers technologies used by the seed industry to improve crop seed quality and the research in
agricultural biotechnology of wheat of Rothamsted Research at Harpenden.

**Value** - Half course unit

**Suitable** - 3rd year

**Available** - 1st term

**On** - 1st term: Tuesday

**Prerequisites** - BS2020 or BS2150

**BS3530 – Application of Advanced Molecular Biology Methods – Prof R S Williams**

Molecular biology research provides a key approach underpinning modern research that is employed in a wide range of systems including animal and plant models, as well as the simple social amoeba, *Dictyostelium*. This approach often employs the production and use of transgenic and knockout genetically modified organisms and the analysis of gene regulation and expression in response to the environment and in circadian rhythms. This course will describe these modern functional genomics studies, at an advance level, with particular reference to current research applications.

**Value** - Half course unit

**Suitable** - 3rd year

**Available** - 1st and 2nd term

**On** - 1st term: Thursday, 2nd term: Tuesday

**Prerequisites** - BS2530

**BS3540 – Cell and Molecular Biology of Cancer – Prof L Bögre**

This course will cover selected topics in molecular cell biology relevant to cancer, including: cell-cell adhesion and signalling; stem cells. We cover the importance of the cytoskeleton, including microtubule structure and their functional roles for cell division, cell cycle and polarity, cell dynamics and diseases. Additional topics on cancer biology include oncogenes, tumour suppressor genes and caretaker genes and the signalling and regulatory pathways these are involved in. The course covers the cellular, tissue and developmental barriers that have to be broken for the development of cancer. These will include apoptosis, senescence, angiogenesis and metastases. The course will also include case studies and novel research avenues for diagnosis and the rational treatment of cancer.

**Value** - Half course unit

**Suitable** - 3rd year

**Available** - 1st and 2nd term

**On** - 1st term: Tuesday, 2nd term: Monday

**Prerequisites** - BS1060 + BS2150 or BS2530

**BS3560 – Functional Genomics, Proteomics and Bioinformatics – Dr A Devoto**

The course will give an advanced treatment of structure-function
relationships in proteins and of new opportunities for the use of genome-wide analyses in dissecting regulation in biological systems. Gene and protein networks will be also discussed. Topics include, post-genomic science; modes of specific recognition in mediating protein interactions; domains and functions; and, protein engineering. Students also complete a guided introduction to bioinformatics resources.

Value - Half course unit
Suitable - 3rd year
Available - 1st and 2nd terms
On - 1st term, Monday; 2nd term, Wednesday
Prerequisites - BS2520

BS3570 – Human Embryology and Endocrinology – Dr J Murdoch
This course will cover selected aspects in the development of human embryos and the function of particular endocrine systems. Topics covered in detail include early embryonic development, with formation of the three cell layers during gastrulation and the specification of anterior-posterior and left-right axes. The formation and patterning of the brain and spinal cord will be discussed, including the cellular and molecular processes involved. The effects of genetic and environmental insults in causing birth defects will be considered and the preventative action of folic acid treatment will be discussed. Techniques for deciphering the cause of birth defects will be considered, including the role of model organisms and the process of positional cloning. Other topics include the embryonic processes involved in craniofacial development and craniofacial defects. The development of the thyroid, parathyroid and adrenal glands will be covered, with detail on the synthesis, regulation and action of parathyroid and adrenocortical hormones. Sexual determination and differentiation will be discussed. Reproductive endocrinology will cover the regulation of reproductive function in males and females, including the hormonal changes associated with pregnancy. The processes of egg and sperm maturation and fertilization will be covered, leading us back to early preimplantation development. This course is three quarters Embryology and one quarter Endocrinology.

Value - Half course unit
Suitable - 3rd year
Available - 1st and 2nd term
On - 1st term: Wednesday, 2nd term: Friday
Prerequisites - BS2050 or BS2060 or BS2550

BS3580 – Cell and Molecular Neuroscience – Dr P Alifragis
This course covers brain development, function and disorders. We discuss the cellular and molecular mechanisms of brain development with particular reference to the cerebral cortex. We discuss in detail the synthesis, storage and release of neurotransmitters. We will review the molecular basis of learning and memory. We will also study the cellular...
and molecular basis of brain disorders, including the neurodegenerative disorder, particularly Alzheimer’s disease, as well as epilepsy and bipolar disorder. The course also includes lectures from a clinician, on the cellular and molecular basis of neuroprotection in preterm babies and infants.

**Value** - Half course unit  
**Suitable** - 3rd year  
**Available** - 1st and 2nd term  
**On** - Wednesday (and Thursday for some lectures Term 2, tbc)  
**Prerequisites** - BS2550

**BS3590 – Molecular Basis of Inherited Disease – Dr R Yáñez**

The course provides an introduction to the theory, technology, and clinical practice of human molecular genetics: the metabolic and molecular bases of human inherited disease, mapping disease genes, the human genome project, bioinformatics, clinical aspects of the biochemistry of inborn errors of metabolism, and therapeutic approaches. The course is taught in relation to a selected range of illustrative genetic disorders and inborn errors of metabolism such as muscular dystrophies, cystic fibrosis, haemophilia, lysosomal storage disorders, haemoglobinopathies, mitochondrial respiratory chain disorders, neurotransmitter synthesis disorders, lipoprotein diseases and primary immunodeficiencies. This course is taught primarily by external lecturers who are experts in the field.

**Value** - Half course unit  
**Suitable** - 3rd year  
**Available** - 1st term  
**On** - Friday  
**Prerequisites** - BS1070 and BS1090

**BS3595 – Clinical Physiology and Medicine – Dr J Murdoch**

This course will be taught by clinicians from Ashford and St Peter’s Hospital, who are experts in their field and working at the patient interface. The course will therefore be taught from the clinical perspective, providing both background in a topic but taking it through to consider common disorders, their causes and the medical treatments. The course will consider the clinical physiology of selected systems, including smooth muscle, bone and soft tissues, and will set these tissues into context in terms of intestinal function, anorectal physiology, and the formation and function of bone and soft tissues. The lectures will consider common diseases and disorders, including pelvic floor defects, complications of child birth, colon cancer and irritable bowel syndrome. Clinical problems with bone and soft tissue will be discussed, including disorders of calcium homeostasis, metabolic defects, and the effects of exercise, ageing and injury. The course will address the processes involved in making an initial clinical assessment of a patient. This course will also discuss how to rigorously scientifically evaluate new interventions and new drug treatments, and students will learn how to critically
appraise treatment evaluation data.

**Value**  - Half course unit

**Suitable**  - 3rd year

**Available**  - 2nd term

**On**  - varies

**Prerequisites**  - BS2050

**BS3600 – Clinical Diagnosis of Disease – Prof P Sharma**

The course will cover the clinical application of biochemistry and physiology. The chemical pathology of a range of physiological systems will be studied, including kidney, liver, heart, thyroid and bone. In addition clinical biochemical aspects of cancer diagnosis and infertility and epilepsy investigation will be covered. Lectures will concern the rationale behind the analyses used in the biochemical investigation of disease, and the clinical aspects of disorders affecting the various organs/systems. The lectures will be followed by tutorials based on individual clinical cases and their investigation. Students will be required to prepare clinical case study reports with relevant investigations, findings, recommended treatments, prognoses and conclusions. This course is taught primarily by external lecturers, as clinical experts in the field.

**Value**  - Half course unit

**Suitable**  - 3rd year

**Available**  - 2nd term

**On**  - Thursday

**Prerequisites**  - Biomedical Sciences or Medical Biochemistry degree programmes only

Course unit specifications can also be found at:

[https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx](https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx)
4.6 Registration Process

**Choice of course-units:** Brief information about courses taught in the School is given in this handbook. More detailed information will be given in the Course specification for each individual course; these can be found at: https://www.royalholloway.ac.uk/biologicalsciences/informationforcurrentstudents/courseunits/home.aspx

Students should be aware that there are College thresholds for the minimum number of students required for a course to be taught and some courses can only accommodate limited numbers. After preliminary registration if a course is under-subscribed or over-subscribed students will be notified as soon as possible and an alternative selection can then be made. However, courses are only rarely undersubscribed.

**Preliminary registration:** In the summer term, towards the end of their first and second years, students must pre-register for the optional (non-mandatory) courses they intend to take the following academic year. Registration for mandatory courses is automatic. Pre-registration for suitable optional courses is done conveniently by email and full instructions are provided. Appropriate forms are completed and submitted as an attachment to SBSPre-registration@royalholloway.ac.uk.

Careful consideration to the requirements of individual Degree Programmes must be given (see summary tables on pages 32-37) before completing the appropriate forms. Students should consider courses which form coherent groups, and must check timetables for compatibility. Note that while every effort is made to avoid clashes, it is ultimately the student’s responsibility to check the timetabling allows particular course combinations. Guidance on selection of courses is available from Personal Advisors and the Academic Coordinators for Molecular and Organismal Bioscience.

**Registration:** Confirmation of course registration occurs at the beginning of the relevant academic session. It is imperative that students see their Personal Advisor at the appointed time; the official College ‘Course Entry Form’ signed by the student at that time constitutes the basis for examination entries. Please note that the School makes every effort to retain course timetabling but that there may be unavoidable changes to the timetable over the summer vacation. Students should therefore check the timetables again carefully at the beginning of the academic year.

4.7 Course registrations

You can only register for four course units in each academic year (this
excludes courses which are being resat). While you have the option of changing courses within the first two/three weeks after the start of teaching (excluding Welcome week), subject to agreement from the department, once you have submitted assessment for the course, you may not replace it with another either in that term or in a subsequent term (e.g. Spring term). Any courses that you wish to take on an extracurricular basis (that is, as extra and not counting towards your degree) must be identified at the start of the academic year or before any assessment has been completed for the course.

**4.8 Change of Degree Programme**

You are only permitted to change programmes up to a maximum of three weeks after the start of teaching (excluding Welcome Week) with the following exceptions:

- if the change is only in degree pathway title, which does not affect the course units taken and you are still taking the correct course units (worth 120 credits in total) as detailed in the relevant programme specification;
- if the change does affect the course units taken and you have to pick up an extra half unit in the Spring term but you would be taking the correct course units as detailed in the relevant programme specification and would have no less than 120 credits.

Within the School of Biological Sciences, we offer two groups of degrees: the Organismal degrees, and the Molecular degrees. Within each group, the degrees share a common first year course structure. This provides students with the flexibility to change their degree programme, within these degree groups, up until the end of the first year. Students considering making a change to their programme registration should seek advice from their Personal Advisor in the first instance. To make the programme change, the student needs to:
  a) see the appropriate Academic Coordinator to obtain approval.
  b) obtain the necessary form from the Faculty Administrators which will have to be signed by the Director of Teaching.

**4.9 Withdrawal from College**

Withdrawal from College or transfer to another institution may have considerable academic and financial significance. This also applies to Interruption of Studies (see College Regulations). Students considering such moves should discuss them with their Personal Advisor and subsequently with the Director of Teaching at the earliest possible opportunity. Further information is available from the Student Services Centre.
4.10 Exchange Programmes

The College offers students the opportunity to study abroad for a year through the International Exchange programme and the Erasmus programme. Students are able to apply to study abroad in Europe or at one of 28 International institutions in the USA, Canada, Australia, New Zealand, Hong Kong, South Korea, Japan and Singapore, either as an integral part of their degree programme or as an additional year of study. Further details on participating in such programmes and restrictions placed on students in different departments are available at https://www.royalholloway.ac.uk/international/studyabroadandexchanges/home.aspx.
5 Facilities

5.1 Libraries

There are 2 libraries on campus:

- **Founder's Library**, located on the South Side of Founder’s Building, houses most language, literature, film, music and theatre material;
- **Bedford Library**, located up the hill from the Students’ Union next to the School of Biological Sciences Bourne building, houses science, social science and history material.

Details, including further resources available, opening times and regulations, can be found online: [http://www.royalholloway.ac.uk/library/home.aspx](http://www.royalholloway.ac.uk/library/home.aspx)

If you cannot find the specific items that you require in the libraries, it is possible to order items from other libraries by inter-library loan or to gain access to the Senate House Library or other university libraries. You can obtain further information on this by asking at the library helpdesks. The Information Consultant for the School of Biological Sciences is Leanne Workman, who can be contacted at [leanne.workman@rhul.ac.uk](mailto:leanne.workman@rhul.ac.uk).

The Library provides a range of training sessions designed to enhance your existing library and research skills. These are available in both class-based and self-study formats. For information on available sessions and to book a place, go to: [http://www.royalholloway.ac.uk/library/helpandsupport/findinginformation.aspx](http://www.royalholloway.ac.uk/library/helpandsupport/findinginformation.aspx).

In the second and third years, you will be expected to read specialist review articles and original research papers from journals stocked in the Bedford Library, which is adjacent to the Bourne Laboratory, unless they are available in electronic form via the College website. Provided the College subscribes to the journal, copies may be made in the Bourne Building.

5.2 Photocopying, printing and computing

5.2.1 Photocopying

The departmental photocopier is in constant use by office staff and lecturers. For this reason, we are unable to allow undergraduate students to use it. Instead you can use copier-printers (multi-function devices, MFDs) located in the libraries, the Computer Centre and many PC labs, which will allow you to make copies in either black and white or colour. Further information is available online: [http://www.royalholloway.ac.uk/library/usingourlibraries/photocopyinga](http://www.royalholloway.ac.uk/library/usingourlibraries/photocopyinga)
Many journals may be accessed on-line via the college network, e.g. Science Direct. Details of which journals may be accessed on-line can be obtained from the library web page.

If you require copying to be done for a seminar presentation, you need to give these materials to your tutor to copy on your behalf. Please make sure that you plan ahead and give the materials to your tutor in plenty of time.

5.2.2 Printing

Printing is by self-service multi-function devices (MFDs) which function as both printers and photocopiers. Many of the PC labs are open 24 hours a day, 7 days a week. Alternatively, there are computers available for your use in the libraries and Computer Centre.

Departmental staff are unable, in any circumstances, to print anything out on your behalf. Copier-printers (MFDs) are located across the campus in the PC labs, libraries and Computer Centre. Further information on printing is available online: http://www.rhul.ac.uk/it/printing/home.aspx

5.2.3 Computing

Personal Computers are available at several sites on the campus and are equipped with the College standard word-processing (Microsoft Word), spreadsheet (Excel) and presentation (PowerPoint) packages. SPSS, a statistics package to which students are introduced in several courses, is also available. Computers can also be used for e-mail and access to the internet.

The Computer Centre provides a range of IT training sessions designed to enhance your current IT skills. These are available in both class-based and self-study formats and successful completion of the course is rewarded by a College IT Skills certificate. To participate in these sessions, go to: http://www.royalholloway.ac.uk/it/training/home.aspx

The network is the responsibility of the Computer Centre, which is accessible 24 hours every day, after prior registration in the Centre. All students using the computer facilities must be appropriately registered. Students who registered in their first year do not need to do so again. Most students will automatically be registered when they enter the College and can use the system at any time.
Students are required to provide their own storage media for storing files; they may be purchased from the Computer Centre. Instructions on printing materials are given to all students who attend sessions run by the Computer Centre (College Computers Essential Guide).

It is in the interest of all students to virus-check their USB drives (or other storage media) regularly, using the scanning facilities on the networks. Never store files on the hard drives of any computer network, as these will be cleared weekly. Material can be stored in a student’s own directory on the central Computer facility (accessed as drive Y from the networks) or on personal storage media. It is a good idea to keep a backup copy of any document under a different name. It is essential to make frequent back-up or duplicate copies of important material as staff cannot undertake to retrieve damaged or corrupt files. Computer problems are not acceptable reasons for the late submission of work.

Do keep a record of your username and password since both are required for access to any facilities. Nobody in the School can identify a particular password if it is forgotten. Problems in the use of the computing facilities should be addressed to the Computer Centre – please see https://www.royaltholloway.ac.uk/it/ithelp.aspx for details of how to get in contact with IT.

5.2.4 Binding

Facilities for binding reports are available in Bedford Library. In addition, a ring binding facility is available in the School Teaching Office for BS3010 and BS3020 reports, which students are expected to operate themselves. You must first watch the demonstration video, available on the Moodle site for BS3010. Staff in the Teaching Office may be able to help with binding but you should not expect them to do this for you.

5.3 Social facilities

The Alice Room on level 5 of Bourne is available as social space to staff, postgraduates and final year undergraduates of the School of Biological Sciences. All students may use the Bourne foyer as a social area. Please use the litter bins provided.

5.4 Community Action Volunteering

Royal Holloway Community Action Volunteering exists to connect, train and support students seeking to volunteer in the local community. There is a whole range of project opportunities including sports coaching, youth work, support for people with needs, tutoring & mentoring school pupils, teaching English or IT to young refugees, victim support, reminiscence work, befriending elders, charity shop assistance,
fundraising, animal support work, events management, culture, arts & music, media & photography, environmental, conservation & preservation work and so much more.

Community Action Volunteering provides support for your volunteering work through hosting the Volunteering Fair, organising Get Involved week, sourcing Christmas & Summer opportunities, running regular transferable skills workshops, managing the Community Action student team and giving recognition through the Volunteering Awards. They partner with various accreditation schemes such as with Volunteering England, V-involved and the Duke of Edinburgh Award. During the year you are invited to join a project team as part of a one off initiative such as Make a Difference Day, the BIG spring clean and Volunteering Week, where volunteers get involved in a range of local community projects.

To show interest in Community Action Volunteering, drop by the office in the Students’ Union, call 01784 414078, text 07799 378052, e-mail volunteering@royalholloway.ac.uk, or go online at https://www.royalholloway.ac.uk/volunteering/home.aspx.

5.5 Smoking and drinking policy

Smoking is not permitted anywhere in the Bourne or Wolfson buildings or within 5 metres of the buildings. Please do not smoke in the covered walkways as your smoke will infiltrate adjacent offices and labs. This is particularly important next to the greenhouses as smoke affects the plants growing in them. Please also do not smoke in front of Bourne building, as your smoke is then taken into the ventilation system for the lecture theatres. A covered smoking area is provided in front of Bedford Library. Absolutely no food or drinks are permitted in any of the laboratories, and only water may be taken into lecture rooms.
6 Coursework Essays and Dissertation

6.1 Coursework assignments and lab reports

All coursework assignments and lab reports/proformas are to be submitted either into the locked boxes by 4.45pm in the Bourne Tunnel, or electronically, as stated by the Course Coordinator. You must check submission deadlines in the course specifications and laboratory handbooks, or on Moodle. You will find advice on how to write good practical reports in the laboratory handbooks and in the book entitled “Study and Communication Skills for the Biosciences”, which is provided to Year 1 students. You should also adhere to specific instructions from academics on what is required for particular coursework assessments.

6.2 The Individual Research Project (BS3010)

All students must complete a project in their final year, and this will be assessed by continuous assessment of performance (15%), the written report (75%) and by a talk (10%). The overall aim is to provide students with the opportunity to investigate a practical or theoretical problem in biological sciences and in particular to develop the skills to plan (in conjunction with the supervisor), execute and report the results of the investigation. You will have approximately four weeks to consult with potential Project Supervisors before you hand in your project choices. Detailed information about available projects will be provided to students during the spring term of their second year.

6.3 The Dissertation (BS3020)

The student is asked initially to design a potential dissertation topic from their own interests within the first 3 weeks of term, which must be discussed, and agreed, with an appropriate Dissertation Supervisor before a final decision is made. Topics should be Molecular or Organismal in nature, and should relate to a focused area. Note, however, the Dissertation Topics cannot be in the same area as, and must be distinct from, the Final Year Project topic (Course Unit BS3010) that the student is undertaking. The project and dissertation supervisors should also be different academic staff.

Enough information should exist in the scientific literature to allow you to write an informative and critical review of the chosen subject. You will be expected to cite within the text and list all consulted scientific journal references at the end of your report (see sections 6.4 and 6.5 below). Full instructions about topic registration and about the dissertation report are given in Moodle and in the BS3020 Handbook respectively.
6.4 Project and Dissertation Supervisors

With both projects and dissertations, you will choose or be assigned a supervisor who will oversee your work. In most cases students are happy with the supervisory relationship. However, there are occasions where for some reason the supervisory relationship does not work and breaks down. If this happens, you should speak as soon as possible with the Academic Coordinator/ Director of Teaching or your Personal Advisor to see whether the problem can be resolved informally, e.g. through mediation, changing supervisor. You should not wait until after you have received your final degree results to raise the matter as it is very difficult for the College to resolve such matters or take remedial action at that point.

6.5 Referencing

For all written coursework, you are expected to reference your sources with appropriate citations in the text, and to include a reference list at the end of your work. Reference citation must be clear and uniform throughout. Familiarise yourself with reference styles used in journals and use a comprehensive style which gives all the authors’ names and the full title of the paper in the final reference list.

Make sure that all the references that you cite in the text are listed in the reference section and that all references listed in the reference section are cited in the text. No reference should be cited that you have just read for extra information but have then not cited information from.

Using a form of reference managing software is strongly encouraged for dissertations and projects. RefWorks is a web-based bibliographic manager that is available free of charge to students, and training is available through the Library. Alternatively, various other on-line programmes are now available, or students can purchase software such as EndNote or Reference Manager.

Including appropriate citations and complete referencing of your work is important, as without this you may find you are committing plagiarism. See section 7.9 for more information about plagiarism.

6.6 Referencing style

There are a range of referencing and bibliographic conventions, examples of which may be seen in current academic and scientific journals (e.g. Nature, Parasitology Today, Current Opinion in Infectious Diseases). The School would like students to use the “Harvard style” of citation and referencing. A separate “Citing and Referencing” guide has been prepared, to give detail of what is required. Please use this!
7 Assessment Information

7.1 Illness or other extenuating circumstances

Students are advised to carefully read the Instructions to candidates as well as the Extenuating circumstances – Guidance for students.

Extenuating circumstances are defined as unforeseen circumstances which are outside a student’s control and which may temporarily prevent a student from undertaking an assessment or have a marked/ significant detrimental/adverse impact on their ability to undertake assessment by coursework or examination to the standard normally expected.

This means that such circumstances rarely occur. They are outside your control as they are:

- Unforeseeable - you would not have prior knowledge of the event (e.g. you cannot foresee that you will be involved in a car accident);
- Unpreventable – you could not reasonably do anything in your power to prevent such an event (e.g. you cannot reasonably prevent a burst appendix.)

It is these short-term (temporary) circumstances that the College normally regards as extenuating circumstances.

Inability to submit coursework

If you are unable to submit coursework through unexpected illness or other acceptable cause (i.e. events which are unpreventable and unforeseeable) it is assumed that you will request an extension to the submission deadline from your department. In order for an extension to be granted you will need to provide the department with adequate documentation in accordance with the guidance in Appendix B of the Extenuating Circumstances – Guidance for students. The decision on whether to grant an extension rests with your department.

Absence from an examination

The Sub-board of Examiners may take the following into account when considering your results: if you miss an examination through unexpected illness, or other acceptable cause (events which are unpreventable and unforeseeable), if you commence an examination and have to leave due to acute illness or if you believe your performance on the day was seriously compromised by an unexpected and acute illness that you could not reasonably have been expected to have managed otherwise. You will, however, need to submit an Extenuating Circumstances form and have
adequate supporting documentation in accordance with Appendix B of *Extemating Circumstances – Guidance for students*. You should also read the section **Illness & absences from an examination and departmental assessments and extenuating circumstances** in the *Instructions to Candidates* issued by Student Administration [http://www.royalholloway.ac.uk/ecampus/academicsupport/examinations/examinations/home.aspx](http://www.royalholloway.ac.uk/ecampus/academicsupport/examinations/examinations/home.aspx) for full details on how to inform your department about extenuating circumstances relating to missed examinations as well as the deadline for submission of such information.

**Ongoing circumstances**

If you have ongoing circumstances that you believe are adversely affecting your performance during the year, these should be raised with your department and with the College’s **Support and Advisory Services** as soon as possible so that strategies to help you manage the situation can be considered e.g. you have an illness that does not constitute a disability, a family member is ill and needs your support or you have suffered an adverse life event.

It may that the circumstances are severely impacting on your ability to study by causing you to repeatedly miss scheduled teaching and/ or impacting on your ability to complete assessments at the designated time. If this is the case and there is not a reasonable method available to enable you to manage the situation, you may need to consider, in consultation with your department and **Support and Advisory Services**, whether it would not be in your best interests to interrupt until the issues have been resolved and you are able to fully commit to and benefit from your academic studies.

Ongoing adverse circumstances do not normally constitute extenuating circumstances as they are not unforeseen and in some cases are not unpreventable. There is therefore very little that the Sub-board can do, in terms of current College regulations, to mitigate such circumstances.

Please read the *Extemating circumstances – Guidance for students*, in particular Section 5.

**Support and exam access arrangements for disabled students and those in need of support**

Some students at the College may have a physical or mental impairment, chronic medical condition or a Specific Learning Difficulty (SpLD) which would count as a disability as defined by the Equality Act (2010) that is, “a physical or mental impairment which has a long-term and substantial effect on your ability to carry out normal day-to-day activities”. It is for such conditions and SpLDs that **Disability and Dyslexia Services** can put in place support and exam access arrangements. Please note that a “long-term”
impairment is one that has lasted or is likely to last for 12 months or more.

If you have a disability or SpLD you must register with the Disability and Dyslexia Services Office for an assessment of your needs before support and exam access arrangements (‘reasonable adjustments’) can be put in place. There is a process to apply for special arrangements for your examinations. Disability and Dyslexia Services can discuss this process with you when they assess your needs. Please see the section Students in need of support (including disabled students) for further guidance about registering with the Disability and Dyslexia Services Office.

Please note that if reasonable adjustments, including exam access arrangements, have been put in place for you during the academic year, the Sub-board will not normally make further allowance in relation to your disability or SpLD.

7.2 Submission of written work

Students are told, in writing, in individual courses when and where reports, essays or other material for assessment are to be handed in. Material will not be accepted at other locations. Work for formal assessment will not normally be accepted by e-mail or by post, except in exceptional circumstances, if agreed in advance.

All coursework must be posted in the correct locked box in the Bourne tunnel before the stated deadline unless you are advised otherwise. Make sure that all the components of the coursework are firmly attached using a paperclip (for first year work) or staple (for other years) and that every page is labelled with either your name or candidate number. Please note that deadlines are strictly enforced. Work posted in the wrong box will be given a mark of zero, even if you have placed it there before the deadline. The box will be emptied immediately the deadline has passed and the coursework will then be passed to the relevant course coordinator. When a piece of coursework is late it must be handed in to the Teaching Office B5-02, not to a member of academic staff. If the office is closed (usually at 5:00pm each day) it must be handed in to this office as soon as possible the following morning. The report will be date-stamped and, if an extension has been given, this will be recorded alongside the date stamp. Students will be asked to sign for submission of late work.

Loss of coursework through car theft: You are strongly advised not to leave your lecture notes, coursework or project reports in an unattended car. The increasing incidence of car theft has resulted in some students losing irreplaceable written work. Be warned!

Loss of coursework through computer and/or printing problems: Note
that the loss of coursework prior to submission due to corruption of a file or similar computer- or printer-associated problems is not an acceptable reason for the late submission of work. Always make sure that you keep a backup copy of work and the final version on a separate disk or file storage media so that any such problems are avoided. Do not leave printing until the last minute!

**Laboratory reports:** Attendance at all laboratory classes and the submission of written reports is essential, unless there are valid and documented reasons for failure to attend or to submit a report on time.

Writing an account of your investigations is an integral part of your training as a scientist. For some of the practicals you will be provided with Pro-forma sheets (including graph paper). For other practicals you will be expected to write a fuller report. In all cases you need to complete the write-up and put it into the appropriate labelled box in Bourne by 4.45pm on the day stated in the Laboratory handbook or as directed by the academic in charge of the practical.

### 7.3 Extensions to deadlines

Extensions to deadlines will only be given exceptionally, when corroborative evidence of illness or unforeseen circumstances will be required. Extensions to deadlines can only be granted by Dr J Murdoch (Director of Teaching) or, in her absence, by the Academic Coordinators Dr J McEvoy (Molecular degrees) or Dr B Thomas (Organismal degrees).

Extensions must be requested in person, **by appointment**, in advance of the submission deadline. Requests must be time-specific and realistic; no open-ended extensions are granted. Save for emergencies, extensions requested by email or by telephone will not normally be considered.

### 7.4 Penalties for late submission of work

Work submitted after the published deadline will be penalised in line with Section (13)(4) of the College’s [Undergraduate Regulations 2016-17](https://www.royalholloway.ac.uk/ecampus/academicsupport/regulations/home.aspx)

Please ensure that you are aware of the deadlines set by your department(s) and also the requirements to meet this deadline, e.g. whether you need to submit electronic and/or paper copies for your submission to be deemed complete (see submission of written work above).

**Section (13)(4)**

In the absence of acceptable extenuating cause, late submission of work will be penalised as follows:
- for work submitted up to 24 hours late, the mark will be reduced by ten percentage marks;*
- for work submitted more than 24 hours late, the mark will be zero.

*e.g. an awarded mark of 65% would be reduced to 55% and a mark of 42% would be reduced to 32%.

If you have had extenuating circumstances which have affected your ability to submit work by the deadline these should be submitted in writing, accompanied by any relevant documentary evidence, to your department(s). As with all extenuating circumstances it is the discretion of the examiners whether to accept these as a reason for having not submitted work on time. Please see the section on applying for an extension to the deadlines set, and the section for details on submitting requests for extenuating circumstances to be considered.

### 7.5 Candidate Number and Student ID Number

You have two different numbers associated with you while a student at Royal Holloway. Your **Student ID number** is written on your College card, and remains the same throughout your time at Royal Holloway. This enables administrative staff within the College and the School to be certain of a student’s identity when making any administrative changes. You will need to include this on any official documentation, for example if you submit a Notification of Absence, to avoid possible confusion between students with similar names.

Your **Candidate Number** is a number that is used when submitting work for anonymous marking, and also on exam scripts. **Please note:** Your Candidate Number is completely different to your Student ID number, and is a number that you should otherwise keep private. Candidate Numbers are issued to students by the College through Campus Connect in early October. Your Candidate Number will change each academic year. For 2016-17, all Candidate Numbers will be in the format 170****. It is important that you use the correct Candidate Number on your exam scripts! During your first year, most coursework is submitted by student name, so you should not submit first year work by Candidate Number unless specifically asked to do so.

**NB you should not at any time put your name AND candidate number together on work you submit.**
7.6 Anonymous marking and cover sheets

Current policy on anonymous marking of coursework requires that you write either your name or your current candidate number clearly on your coursework and on any supplementary material which could become detached. You must also write your Personal Advisor’s name in all work submitted for assessment.

All work submitted in hard copy must carry a coursework submission sheet attached to the front. This must be completed, to show the candidate name/number (as appropriate), the course code, the practical name and date, and the name of the student’s Personal Advisor. First year work should also include a barcode on the submission sheet.

College policy is that there should be anonymous marking of all undergraduate coursework. However, the Dean of Science has approved exemption from anonymous marking for all first year, and certain second and third year coursework assessments, in the School of Biological Sciences. As a result, the following procedures for handing in and marking coursework will operate:

**First Year Course Units**: All coursework will be handed in by student name.

**Second Year Course Units**: BS2110 (oral presentation) and BS2570 have been granted exemption from anonymous marking of coursework and so will be marked or handed in by student name.

Coursework from all other course units must be marked anonymously and will therefore be handed in by candidate number.

**Third Year Course Units**: BS3010, BS3020, BS3090 (podcast), BS3180, BS3190, BS3510, BS3520, BS3540, BS3560, BS3590, BS3595 and BS3600 have been granted exemption from anonymous marking of coursework and so will be handed in by student name.

Coursework from all other courses must be marked anonymously and will therefore be handed in by candidate number. DO NOT write both your candidate name and candidate number on any piece of work.

7.7 Penalties for over-length work

Work which is longer than the stipulated length in the assessment brief will be penalised in line with Section (13)(5) of the College’s Undergraduate Regulations 2016-17.
Learning to write concisely is an important transferable skill. The application of penalties for over-length work helps promote in students the discipline of writing to a pre-determined specification. The penalties also help to limit the occasions on which markers are asked to read work which exceeds the word limit to an unreasonable degree.

Section 13 (6)
Work which exceeds the upper word limit set will be penalised as follows:

(a) for work which exceeds the upper word limit by up to 10%, the mark will be reduced by ten percent of the mark initially awarded;

(b) for work which exceeds the upper word limit by more than 10% but less than 20%, the mark will be reduced by twenty percent of the mark initially awarded;

(c) for work which exceeds the upper word limit by more than 20%, the mark will be reduced by thirty percent of the mark initially awarded.

In addition to the text, the word count should include quotations and footnotes. Please note that the following are excluded from the word count: candidate number, title, course title, preliminary pages, reference list and appendices.

7.8 Return of written coursework

Work submitted by students is, in general, returned to the student to provide feedback on performance. The following College policy applies to the return of coursework:

Assessed work (other than formal examinations) should be returned within 4 weeks of the submission deadline, except in cases where it is not appropriate to do so for academic reasons. The deadline for the return of marked work should be made clear to students when they receive their assignments. In the event that the intended deadline cannot be met, the revised deadline must be communicated to students as soon as possible.

For first year courses in 2016-17, a new system is to be trialled, where marked coursework will be returned to students electronically. Once marked, the work will be scanned and emailed to students.

For other years, or if the scanning is not possible for a particular piece of work, then the marked coursework will normally be returned to students...
via their Personal Advisors. Students are informed by email (via Moodle) when their coursework is ready for collection from their Personal Advisor. It is the student’s responsibility to arrange collection either during normal tutorial meetings or by appointment with their Personal Advisor. Students must acknowledge receipt of their coursework by signing the coursework submission sheet, which will be retained by your Personal Advisor. In some cases, lecturers may return marked work to students during a subsequent practical class. Electronically submitted work will be made available electronically after marking.

All work submitted by students and which is assessed for examination purposes remains the property of the School of Biological Sciences and, hence, the College. If it is returned to students to enhance the learning process, the marks shown are provisional until confirmed by the Sub-board of Examiners in Biological Sciences, and the College Board of Examiners. Please be aware that you may be asked to return marked coursework to the School in the summer term (after exams) in case of queries or to allow scrutiny by the Examiners.

Note that final year project reports and dissertations are not returned to students as they are required for detailed scrutiny by the External Examiners and the Sub-Board of Examiners in Biological Sciences. However, the Examiners may also wish to review marked work which has been returned to you. Therefore the work must be retained by the student, without amendment, and may be recalled by the Examiners at any time. If the student fails to produce the work, given suitable notice, then the provisional marks may be confirmed or changed as the Examiners see fit. In the event of a student appealing against any part of the educational process or assessment, all relevant work must be returned to the School.

7.9 Feedback

Feedback will be provided in a variety of forms. In many cases, specific feedback will be given on individual pieces of coursework. You should read any comments provided by the marker, as well as taking a note of the numeric marks awarded. The aim of the feedback is to provide you with an indication of how well you are progressing, in relation to the standards expected, and to give you guidance on how to improve your next piece of work. Gaining the specific feedback on your submission will take time; for many courses, the full four week period is needed to mark all the work! For more immediate feedback to students, many academic staff place “generic” feedback information on Moodle. You should look for this type of feedback, a few days after a practical hand-in deadline. Often, this generic feedback will address the most common mistakes made by students. You can use this feedback to learn from other people’s mistakes!
As well as written feedback on submitted work, academic staff will also provide feedback in other ways. Don’t underestimate the usefulness of these many opportunities for gaining feedback! Most lecturers are amenable to answering questions from students, after a lecture; this can be a useful way of checking your understanding of a subject, particularly after you’ve made some effort with additional reading. Discussions with staff during labs can also help you gain feedback, particularly in relation to your lab performance, technical ability, how well you have analysed data or interpreted your results. Feedback on your understanding can also be obtained by engaging with self-assessment exercises, such as quizzes placed on Moodle, or through discussion with your peers. Immediate feedback is also available through participation in quizzes in lectures, particularly if using the Clicker handsets.

Engagement with tutorial activities provides another valuable means of receiving feedback. You will be given the opportunity to write essays, often using past exam paper questions. Your Personal Advisor will mark these and provide specific feedback, both on how well you have understood the course material, and on your ability to write well-structured essays in an appropriate scientific style. You will also have the opportunity to give a short oral presentation, during the tutorials. Your Personal Advisor, and other members of the group, will give you verbal feedback, in the form of constructive criticism that can strengthen your presentation skills. You can learn a lot by listening to the presentations, and criticisms, of others in the group. Engagement with problem solving exercises in the study skills sessions and tutorials provides a mechanism for feedback on numerical and statistical skills. In later years, tutorials provide a mechanism for constructive feedback that will help improve your CV and boost your confidence in presenting yourself.

Exam feedback sessions are also held, at the beginning of second and third years. These provide you with the opportunity to look over your exam scripts, and therefore the chance to read the comments of the examiners. That is valuable feedback that can help improve your exam performance!

7.10 Assessment offences

The College has regulations governing assessment offences which can be found on the following webpage:
https://www.royalholloway.ac.uk/ecampus/academicsupport/regulations/home.aspx

Assessment offences include, but are not limited to plagiarism (see 7.9.1 below), duplication of work, that is, submitting work for assessment which has already been submitted for assessment in the same or another
course, falsification, collusion, for example, group working would constitute collusion where the discipline or the method of assessment emphasises independent study and collective ideas are presented as uniquely those of the individual submitting the work, failure to comply with the rules governing assessment (including those set out in the ‘Instructions to candidates’). The Regulations set out some of the types of assessment offences in more detail, the procedures for investigation into allegations of such offences and the penalties. Students are strongly encouraged to read these Regulations and to speak with their Personal Advisors or other members of staff in their department should they have any queries about what constitutes an assessment offence. The College treats assessment offences very seriously and misunderstanding about what constitutes an assessment offence will not be accepted as an excuse. Similarly extenuating circumstances cannot excuse an assessment offence. Students with extenuating circumstances which affect their ability to submit work should contact their departments about the possibility of an extension or other support.

7.10.1 Plagiarism

**Definition of plagiarism**

'Plagiarism' means the presentation of another person's work in any quantity without adequately identifying it and citing its source in a way which is consistent with good scholarly practice in the discipline and commensurate with the level of professional conduct expected from the student. The source which is plagiarised may take any form (including words, graphs and images, musical texts, data, source code, ideas or judgements) and may exist in any published or unpublished medium, including the internet.

Plagiarism may occur in any piece of work presented by a student, including examination scripts, although standards for citation of sources may vary dependent on the method of assessment. Identifying plagiarism is a matter of expert academic judgement, based on a comparison across the student’s work and on knowledge of sources, practices and expectations for professional conduct in the discipline. Therefore it is possible to determine that an offence has occurred from an assessment of the student’s work alone, without reference to further evidence.

You are **strongly advised** to read Chapter 5 in the book “Study and Communication Skills for the Biosciences”, which is given to all first year students. This chapter explains clearly what constitutes plagiarism and how to avoid it. You must also attend the study skills session and complete the tutorial exercise on Plagiarism, and take the Moodle-based online course ‘How to Avoid Plagiarism’ ([http://moodle.rhul.ac.uk/enrol/index.php?id=1897](http://moodle.rhul.ac.uk/enrol/index.php?id=1897)). In the tutorial session,
you will be asked to sign forms stating that you have completed the training sessions about plagiarism and understand what is permissible, and to verify that all work submitted for assessment is your own.

The following guidelines outline how plagiarism can be avoided. Failure to observe these rules may result in an allegation of cheating. All work submitted, as part of the requirements for any assessment must be expressed in your own words and incorporate your own ideas and judgements. Direct quotations from the published or unpublished work of others must always be clearly identified as such by being placed inside quotation marks, and the source must be acknowledged by citation and referencing. Remember that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as does a single unacknowledged long quotation from a single source. Equally, if you summarise another person’s ideas or judgements, you must refer to that person in your text, and include the work referred to in your bibliography.

Please take note that direct word-for-word copying of text, even with appropriate citation, may be considered as plagiarism; any directly copied passage must be placed in quotation marks to indicate that it is the exact wording of the source. While you may be expected to use (directly quote) short phrases (a few words) in order to communicate with the appropriate scientific terminology, direct quotation of longer phrases should be avoided. You must write in your own words, in order to demonstrate your understanding of the topic.

All work submitted must be solely your own, unless the assignment specifically asks for group work in which case the appropriate acknowledgements should be included to indicate the input of specific individuals. Any work submitted that is not your own (such as an essay obtained or purchased from others, including a “ghost writing” agency) will be treated as an assessment offence and dealt with appropriately.

In some cases you will be asked to submit coursework through ‘Turnitin’, a programme that detects plagiarism by enabling staff to compare students’ work with electronic sources, including work submitted by students at this and other universities. Further information on ‘Turnitin’ can be found at www.submit.ac.uk. For courses requiring a Turnitin submission, you will already be registered for the assignment and should submit your work through the link to Turnitin available through Moodle.

The College, like all academic institutions, regard all forms of plagiarism as serious assessment offences, for which severe penalties may be imposed. Ultimately these could include terminating your registration with the College. There are stringent penalties for cases of plagiarism. Students suspected of plagiarism may be interviewed by a member of
staff, may lose marks, be asked to re-submit work, or be required to take additional training in how to avoid plagiarism. The School will apply Royal Holloway regulations when dealing with instances of plagiarism. Students should refer to the Regulations on Assessment Offences for information on plagiarism and other assessment offences. You should consult your Tutor if you are in any doubt about what is permissible.

The issue of plagiarism is not simply about dangers and penalties - the ability to express your own ideas in your own words, to synthesise and evaluate information from a range of sources, to acknowledge the work of others accurately and define your own work in relation to it, and to cooperate productively in a group, are valuable skills both for your degree programme and for the world of work beyond.

**7.11 Exam Regulations and Marking Schemes**

**Examination process:** Examinations are administered centrally by the College Registry, which is also responsible for preparing the examination timetable. The School is not involved in examination administration; this is an individual matter between each student and the Registry.

The Examinations Officer for the School is Dr J Tovar-Torres, and the Chair of the Sub-board of Examiners is Dr J McEvoy. They advise students on general matters about the examination process within the School. Questions relating to the examination(s) for a particular course are best answered by the Course Coordinator for the course concerned.

Examinations of courses taught within the School take place primarily in the third term, usually during April/May. Exams for the field courses, BS2110, BS3110 and BS2001X, take place either on the last day of the course or at a later date. Examinations for some Term 1 courses may take place in January; for Biological Sciences, this is currently limited to BS1030, BS2050 and BS2060.

**Entry to examinations:** Student Administration is responsible for administering everything to do with College examinations and results, including the processing of final results and producing proof of study documents (https://www.royalholloway.ac.uk/ecampus/academicsupport/examinations/home.aspx). Your examination entries are based on the course unit registrations made with the School at the start of session.

When directed by the Examinations Office, it is vital that you check that you are fully registered for your examinations. To do this, you should visit the Campus Connect web portal. Log in using your computer username and password, click on the 'Study' tab, and look under 'Study Information' on the right hand side. Then select 'View and update
Enrolment and Registration Information’, then 'Registration', then 'Active Registrations'. You should check that the information is correct and if there are any errors contact student-administration@royalholloway.ac.uk immediately. The final deadline for registration amendments is January 20th 2017.

**Assessment strategy:** A diversity of assessment methods is used, within and between courses, to accommodate differences in aptitude and background among students. Assessment may be through examinations, submitted work and various forms of participation in class work. The objective is to ensure that all students are assessed fairly and through a broad spectrum of criteria, to establish their overall competence. Overall assessment is expressed in the final degree class awarded.

**Criteria for assessing examination answers:** There is rarely a single fully correct answer to essay questions set in conventional written examinations in Biological Sciences. Frequently examiners are seeking evidence of understanding supported by good examples, and the ability to incorporate diverse but relevant information into a comprehensive answer in a clear, concise and critical manner. Expectations increase as students progress through their degree programmes.

In the first year most, if not all, reading to supplement lecture and laboratory notes may be found in textbooks which students are advised to buy or consult frequently. In the second year, textbooks will still be used frequently but reviews and original literature will be of greater importance. By the final year, and especially in the context of individual research projects, all students will be expected to use research publications from a range of sources to support and extend the information supplied in courses. These should be used critically and appreciation of the evidence in support of diverse arguments will be given additional credit by the examiners. Further details may be found in the Study and Communication Skills for the Biosciences book which is provided to first year students.

The use of NAMED, specific examples and clear, accurate diagrams is always beneficial. Generalisations and waffle will be taken as indications of a lack of understanding or knowledge. Marks awarded to assessed work are based on a set of marking criteria. The criteria used for marking examinations are not absolute but intended to give an indication of what examiners might expect to find in answers appropriate to different degree classes. Students should remember that there is a fairly wide scale of marks within each class, especially the First Class and the Fail category. Marking criteria for 2016-17 are under revision, and will be made available in September 2016. Criteria used for marking laboratory and fieldwork assignments are included in the laboratory handbooks, or may be provided by academics for specific
practicals.

**Multiple choice examinations:** All Multiple Choice Papers (MCQs) for exams in the School of Biological Sciences utilise the same question format and marking system: the Single Correct Response type. Each question has FIVE possible answers, only ONE of which is correct and is to be marked on the answer sheet provided. All correctly answered questions are worth one mark and incorrect answers will score zero. If two or more answers to a question are provided, it will be treated as wrong and score zero.

All answers (and the heading) must be completed in pencil, not ink. A test number, which is NOT the course number, will be given together with a College number at the beginning of the examination. The candidate number is the candidate number given to each student by the College plus 00 at the start. Correct answers are indicated with a single horizontal line through the letter of the choice of correct answer. This can be changed subsequently as explained on the answer sheet; the instructions must be followed precisely. Practice in completion of a MCQ answer sheet will be provided in tutorials. It is important that you make sure that you are familiar with the procedure before sitting examinations.

**Marking criteria and past examination papers:** The marking criteria for examinations in Years 1 & 2 and in Year 3 are given in Appendices 2 and 3 respectively. Past examination papers can be found online via Moodle or through the Library. It is School policy to make available papers for the previous five years.

**Penalties for answering too many exam questions:** No extra marks can be gained by answering more than the required number of examination questions. Only the required number of answers will be marked. In cases where a single answer booklet is used the answers will be marked in the order written (up until the required number of answers has been marked). Where more than one answer booklet is used answers will be marked in ascending numerical order until the required number of answers has been marked. In all cases, any additional answers will be crossed out and will not count towards the final mark. Answers clearly crossed out by the candidate will not be marked.

**7.12 Marking of illegible scripts**

It is College policy not to mark scripts which are illegible. If you anticipate that you may have difficulty in handwriting scripts which would lead to your scripts being illegible you should contact Disability and Dyslexia Services. [https://www.royalholloway.ac.uk/ecampus/welfare/disabilityanddyslexiaservices/home.aspx](https://www.royalholloway.ac.uk/ecampus/welfare/disabilityanddyslexiaservices/home.aspx)
7.13 Progression and award requirements

The Regulations governing progression and award requirements are set out in your Programme Specification:
http://www.royalholloway.ac.uk/coursecatalogue/home.aspx and also more generally in the Undergraduate Regulations
http://www.royalholloway.ac.uk/ecampus/academicsupport/regulations/home.aspx

For details on the requirements for degree classification please see the section on the Consideration for the Award in the Undergraduate Regulations.
http://www.royalholloway.ac.uk/ecampus/academicsupport/regulations/home.aspx

7.14 Examination results

Please see the Examinations & Assessments website http://www.royalholloway.ac.uk/ecampus/academicsupport/examinations/home.aspx for details of how you will be issued with your results.

The Examinations & Assessments website is the place where you can access the “Instructions to Candidates” and details of the examinations appeals procedures:
https://www.royalholloway.ac.uk/ecampus/academicsupport/academicappealsandcollegecomplaints.aspx
8 Student Support

8.1 Non-academic related enquiries & support

The Student Services Centre is located in the Windsor Building and provides a single point of contact for all non-academic related queries including accommodation, fees and funding, enrolment and graduation. For further details please visit: http://www.royalholloway.ac.uk/ssc

8.2 Students in need of support (including disabled students)

Your first point of reference for advice within the School is your Personal Advisor. You may also seek advice from your Academic Coordinator or from the Director of Teaching. Inevitably, problems will sometimes arise that these people are not qualified to deal with. The College offers a high level of student welfare support which includes a comprehensive Health Centre, a highly regarded Counselling Service, dedicated educational and disability support, as well as a wealth of financial, career and other advice. Further details of each service can be found on the College web on the Student Welfare page: https://www.royalholloway.ac.uk/ecampus/welfare/home.aspx

If you have a disability or specific learning difficulty, it is important that you bring it to our attention as soon as possible. The School’s Disability and Dyslexia Services (DDS) Office representative is Dr Becky Thomas. You must also contact the Disability and Dyslexia Services office (Founder’s West 143; email: disability-dyslexia@royalholloway.ac.uk; tel: +44 (0)1784 276473;) who will arrange for an assessment of needs to be carried out and will advise on appropriate sources of help. Further information is available on the College web on the DDS Support, health and welfare page: https://www.royalholloway.ac.uk/ecampus/welfare/disabilityanddyslexia services/home.aspx

Occasionally, students inform someone of a personal problem, disability or specific learning difficulty that they do not wish to declare to the DDS or other members of staff. Please be assured that personal issues are always dealt with sensitively and with discretion. If a student remains adamant that they do not wish to share information about their difficulties, in order to seek the appropriate support, they will be asked to sign a Disclosure Agreement:
Disclosure Agreement

I, ........................................ do not want ........................... to tell any members of Royal Holloway staff about disability, medical condition or Specific Learning Difficulty.

I understand that the College will therefore not be in a position to make specific accommodations for me in terms of my studies either in supporting me through the academic year or retrospectively should I feel that my performance has been affected by my condition.

If I change my mind, I understand that I will need to inform the Disability & Dyslexia Services or my department if I require any specific accommodations or support during my time at Royal Holloway, University of London.

I have received details on how to contact the Disability & Dyslexia Services

Date ........................................................................................................

Student’s Name ....................................................................................

Student’s Signature ................................................................................

Staff Name ............................................................................................

Staff Signature .......................................................................................
8.3 Academic Skills Support

The Centre for the Development of Academic Skills (CeDAS) offers a variety of courses, workshops, 1:1 tutorials, and online resources that aim to ensure all students at Royal Holloway reach their full academic potential in a range of areas, including academic writing, oral communication skills and maths and statistics.

Whatever your needs, CeDAS is there to ensure that you can perform to the best of your ability, whether it be through a workshop that introduces you to a crucial academic skill, a session within your department that focuses on writing in the discipline, a course that develops your confidence and competence in academic English language, or a 1:1 tutorial with a specialist to help you master a maths technique or sharpen your essay skills.

The Centre also oversees the Royal Holloway Proofreading Scheme, which enables students to pay for an approved third-party proofreader to identify surface error in final drafts. Please note that Royal Holloway does not permit the use of paid third-party proofreaders who are not part of this scheme.

The CeDAS Office can be found on the ground floor of the International Building, room IN002, and you can follow them on Twitter: @cedasrhul. Further details can be found on the CeDAS webpages: www.royalholloway.ac.uk/cedas.

8.4 Student-Staff Committee

There is a Student-Staff Committee on which undergraduate students are represented. The Committee meets three times each year and plays an important role in the School as a forum for airing student views. For the constitution see the committee’s handbook under Compliance/Governance https://www.royalholloway.ac.uk/iquad/collegepolicies/home.aspx

You can use the Committee to raise any issues which concern students. Notices will appear on the Committee’s notice board in the Bourne Tunnel and outside room 5-02, giving details of forthcoming elections or the names of current representatives.

8.5 Students’ Union

The Students’ Union offers a wide range of services and support, from entertainment and clubs/societies to advice on welfare and academic
issues. The Advice and Support Centre, situated on the first floor of the Students’ Union, runs a confidential service that is independent from the College. Open 9.30am - 5pm, Monday – Friday, it operates an open door policy exclusively for students during term time. However, during vacation periods students should call to book an appointment. Full details can be found at www.su.rhul.ac.uk/support

8.6 Learning resources: IT

Moodle: Moodle is Royal Holloway’s Virtual Learning Environment which provides electronic copies of teaching resources, such as lecture slides and web links. You can access this site at http://moodle.rhul.ac.uk/

Campus Connect: This site provides students and staff with RHUL academic services. From here you can check e-mail, access course details, and view or pay course fees. It also provides links to resources and online reading lists. This site can be found at https://campus-connect.rhul.ac.uk/

IT Courses: An introduction to the Computer Centre, and about e-mail, etc., is provided during Welcome Week. Training in the use of standard software packages is available through online resources set up by the Computer Centre.

8.7 Careers information

The College has a Careers Advisory Service, housed in the Horton Building, which is open to any student during normal College hours. http://www.royalholloway.ac.uk/careers/home.aspx

The School is involved in a Careers Education Programme (CEP) whereby students are given advice regarding careers throughout their time in the School. The CEP programme includes talks and practical sessions concerning amongst other things CV writing, job applications and interview techniques. Sessions are conducted by staff from the Careers Service, by employers and alumni in each year. Students should make individual contact with the Careers Office early in their second year to allow enough time for sensible background planning of job applications. Dr Walter Lucchesi, the School’s Careers Advisor, can answer initial queries and indicate sources of career advice.

An introduction to the Careers Service will be given to first year students during Welcome Week. Careers talks for years 2 and 3 will be held later in term 1 and will cover CV preparation, vacation work, job applications and applying for graduate studies. An additional Careers Day will also be scheduled in Term 3, after the exams. You will be advised of specific
dates by e-mail, on the undergraduate notice board, and on the school website
Individual support on writing and presenting your CV is also included in the tutorials.

8.8 Scholarships and prizes

The College is fortunate to possess a number of endowed bursaries, scholarships and prizes. Some were set up many years ago by former staff and students but others were established more recently to encourage or reward new initiatives. Within the School of Biological Sciences, prizes are awarded to individual students to reward academic excellence or greatest improvement. The list of prizes currently available is included in the table overleaf. Members of the Sub Board of Examiners in Biological Sciences decide which students will be awarded these prizes after the final sub board meeting. Individual recipients are notified of their awards. Nominations for prizes may be made only by members of the academic staff.

There are also a number of prizes within the Faculty of Science. The School makes nominations for these each year, although the award is not guaranteed. Details are available from Dr Enrique Lopez-Juez (Room 416, Bourne Building, e.lopez@royalholloway.ac.uk)

There are Travel or Research Awards available through the College to help you study, travel or work on your professional development. Awards range from £200 to £2,000 for undergraduate and postgraduate students. All you need to do to apply is tell us how you would use the money and where it could take you. To find out more visit: www.royalholloway.ac.uk/travelawards.

One travel award that is allocated by the School is the Peter Marsh Prize in Ecology or Conservation. This was established by his parents in memory of a former student of Royal Holloway. The value of the award will vary and is currently up to a maximum of £200. It is normally awarded to a student in his/her second year to assist with a field project in the area of ecology or conservation. Details are available from Dr Enrique Lopez-Juez.

Some bursaries are also available from outside trusts and charities. More information can be found here:
https://www.royalholloway.ac.uk/ecampus/finance/externalfunding.asp x.
### Prizes available to students in the School of Biological Sciences

*Please note that not all prizes are awarded every year.*

<table>
<thead>
<tr>
<th>Prize</th>
<th>Conditions of award</th>
<th>Type of award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement in Biosciences OUP Prize (external)</td>
<td>Awarded to the student who achieved the most or made the most improvement in experimental work over the year.</td>
<td>OUP books</td>
</tr>
<tr>
<td>Arnold Spicer Prize</td>
<td>Awarded to the best finalist in Biochemistry/Medical Biochemistry.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Blackwell Prize</td>
<td>Awarded to the best student in each year in organismal biosciences. Third year prize is for best student in botany continuing to PG study.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Bramley Prize</td>
<td>Awarded for an outstanding project in Biochemistry.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Dudley Cheesman Prize</td>
<td>Awarded to the student(s) who has made the most progress in the second or third year of a molecular degree.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Edkins Memorial Prize in Physiology</td>
<td>Awarded to the best finalist with a strong physiology component in their degree.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Elizabeth Calvert Prize</td>
<td>Awarded to the student who has made most progress in the final year of a molecular degree.</td>
<td>Monetary</td>
</tr>
<tr>
<td>H. Munro Fox Prize in Zoology</td>
<td>Awarded to the Zoology finalist who has made the most progress in their final year.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Paxton Prize</td>
<td>Awarded to the best finalist in the School.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Pentelow Prize</td>
<td>Awarded to the best finalist in organismal biology.</td>
<td>Monetary</td>
</tr>
<tr>
<td>The Physiological Society UG Prize (external)</td>
<td>Awarded to the best physiological third year project.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Rodgers Prize</td>
<td>Awarded to the second year student with the greatest promise as a lab worker (highest aggregate practical marks). Chemistry focus.</td>
<td>Book tokens</td>
</tr>
<tr>
<td>RSC Download Section Prize (external)</td>
<td>Awarded to an outstanding student in a chemistry-related course. Normally the student with the highest mark in BS1030.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Royal Society of Biology Student Award (external)</td>
<td>Awarded to the best finalist in the School.</td>
<td>Associate membership of RSB</td>
</tr>
<tr>
<td>SBS outstanding bioscientist prize</td>
<td>Awarded to the best first and second year students</td>
<td>Amazon voucher</td>
</tr>
<tr>
<td>Spencer Prize</td>
<td>Awarded to the second year student (specialising in chemistry) who has made the most progress in the academic year.</td>
<td>Book vouchers</td>
</tr>
<tr>
<td>University of London Contribution to BioSci award</td>
<td>Awarded for outstanding (curricular and extra-curricular) contribution to the department overall.</td>
<td>Monetary</td>
</tr>
<tr>
<td>Warren Prize</td>
<td>Awarded for an outstanding dissertation/project on molecular biology and genetics of plants or microorganisms.</td>
<td>Monetary</td>
</tr>
</tbody>
</table>
8.9 Non-academic policies

Please see the College Regulations and Procedures webpage
http://www.students.royalholloway.ac.uk/study/read-our-college-regulations-and-procedures/ which includes information on non-academic policies, regulations, and codes of practice as well as the Student Charter. This can also be found on the following webpage
https://www.royalholloway.ac.uk/aboutus/governancematters/studentcharter.aspx

8.10 Complaints and academic appeals procedure

If you have a complaint relating to any aspect of the School or its staff or to any academic or College matter, you should first discuss it informally with your Personal Advisor or with another member of staff in the School. We would hope that the majority of issues of this kind can be resolved by informal discussion. There are, however, procedures that can be invoked in serious cases. These are set out in the College Complaints Procedures for students
https://www.royalholloway.ac.uk/ecampus/academicsupport/complaints/complaints.aspx. You should raise your complaint as soon as possible.

If the complaint concerns an academic decision, there is an academic appeals process. Please note that an academic appeal can only be submitted once you have received your results via the College portal. Details of the appeals procedures and permitted grounds for appeal can be found on the following webpage:
https://www.royalholloway.ac.uk/ecampus/academicsupport/academicappealsandcollegecomplaints.aspx
9 Health and Safety Information

9.1 Code of practice on harassment for students

This can be found on the student home pages under College regulations and procedures: http://www.students.royalholloway.ac.uk/study/read-our-college-regulations-and-procedures/.

9.2 Lone working policy and procedures

The College has a ‘Lone Working Policy and Procedure’ that can be found at: https://www.royalholloway.ac.uk/iquad/services/healthandsafety/policiesandprocedures/loneworking.aspx

Lone working is defined as working either during normal working hours at an isolated location within the normal workplace or when working outside of normal hours.

The Lone working policy for Undergraduates in the School: No Lone Working with chemicals is to be carried out in any UG Research or Teaching Laboratories during or outside of the normal hours (for Undergraduates, Monday to Friday 09:00 – 17:30 during term time, 09:00 – 17:00 out of term time). Lone working that does not involve chemicals (such as for behavioural studies) must be supported with a risk assessment and prior approval from the School’s Health and Safety Coordinator. No Undergraduates are permitted in the School on days when the College is closed, such as around Christmas and Easter, except in exceptional circumstances.

Further details are given in the School’s Safety Handbook. Any health and safety concerns should be brought to the attention of the School’s Health and Safety Coordinator, Ms E. Turton, or to the College Health and Safety Office.

It is likely that most activities will take place on College premises. However, the principles contained in the above section will apply to students undertaking duties off-campus.

9.3 Field trips

Field work is defined as work or study which is undertaken outside the normal work/study environment, including any undertaken away from College owned or leased property. It will also include work that is beyond normal daily activities on College premises (examples include
biological surveys at Huntersdale, soil sampling at Alderhurst).

A trained School field work risk assessor/health and safety coordinator must be consulted at an early stage in the planning. All field work shall be risk assessed using the standard College ‘Field Work Risk Assessment Form’.

Prior to a trip, a set of contact details shall be prepared by the member of academic staff responsible for organizing the field trip and a copy will also be held by the Head of Security. Details will consist of contact address, at least two contact phone numbers and, if possible an alternative means of contact. This is to allow the College the ability to contact or re-establish contact with the group in case of an emergency.

9.4 **Practicals**

You are expected to read the relevant Lab book instructions before coming to a practical class so that you have a clear idea of what you are going to do.

Practical classes have been designed to illustrate certain aspects of the lectures and to teach you how to plan, conduct and interpret experiments with biological material. Consequently, the lack of detailed instructions in some experiments is deliberate and is meant to emphasize the need for you to design your own experiments. Demonstrators will supervise you for all practical classes. If you are unsure of any aspect of the practical do not hesitate to ask the Demonstrators for help.

You must arrive at the beginning of practicals so that you can be briefed on the day’s activities and safety measures. If you arrive late you will distract demonstrators who will have already started to supervise laboratory exercises and may have missed important instructions and safety information. This is inconvenient to everybody concerned. Arrival in the laboratory later than 15 minutes after the scheduled time to start is likely to mean that you are not permitted to take part in that practical and may result in a mark of zero for that particular experiment, unless there is an adequate, documented reason. Please refer back to section 3.

Safety instructions are given at the beginning of the class by the academic in charge and are also indicated in the laboratory handbooks. Make sure that you ask the demonstrators or the course leader if you require clarification.

9.5 **Specialist equipment**

Specialist scientific equipment is used in laboratory classes. Instruction on
its safe usage is provided by the academic in charge and by practical
demonstrators. You may also use specialist laboratory equipment during
the conduct of your final year project. Production of safety risk
assessments will be part of your academic training during your project.
Please follow instructions on equipment usage and if you are unsure –
ask!
10 Equal Opportunities Statement and College Codes of Practice

10.1 Equal opportunities statement

The University of London was established to provide education on the basis of merit above and without regard to race, creed or political belief and was the first university in the United Kingdom to admit women to its degrees.

Royal Holloway, University of London (hereafter ‘the College’) is proud to continue this tradition, and to commit itself to equality of opportunity in employment, admissions and in its teaching, learning and research activities.

The College is committed to ensure that:

- all staff, students, applicants for employment or study, visitors and other persons in contact with the College are treated fairly, have equality of opportunity and do not suffer disadvantage on the basis of race, nationality, ethnic origin, gender, age, marital or parental status, dependants, disability, sexual orientation, religion, political belief or social origins

- both existing staff and students, as well as, applicants for employment or admission are treated fairly and individuals are judged solely on merit and by reference to their skills, abilities, qualifications, aptitude and potential

- it puts in place appropriate measures to eliminate discrimination and to promote equality of opportunity

- teaching, learning and research are free from all forms of discrimination and continually provide equality of opportunity

- all staff, students and visitors are aware of the Equal Opportunities Statement through College publicity material

- it creates a positive, inclusive atmosphere, based on respect for diversity within the College

- it conforms to all provisions as laid out in legislation promoting equality of opportunity.

10.2 College codes of practice

These are available on the College intranet https://www.royalholloway.ac.uk/ecampus/onlinestudenthandbook.aspx
### 11 APPENDICES

#### 11.1 APPENDIX 1: Staff academic and managerial responsibilities, teaching expertise and research interests.

<table>
<thead>
<tr>
<th>Staff Member</th>
<th>Managerial Responsibilities</th>
<th>Teaching areas</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Pavlos Alifragis</td>
<td>Director of Masters by Research (MSc); BS2550 and BS3580 Coordinator.</td>
<td>Developmental neurosciences</td>
<td>Developmental neurosciences. Development of the mammalian cerebral cortex; synaptic plasticity; Alzheimer’s disease.</td>
</tr>
<tr>
<td>Dr Jon Beauchamp</td>
<td>Admissions Tutor; BS1060 and BS2050 Coordinator.</td>
<td>Skeletal muscle structure and function; principles of mammalian physiology.</td>
<td>Biology of adult skeletal muscle stem cells. Postnatal growth, repair and regeneration of skeletal muscle.</td>
</tr>
<tr>
<td>Professor Laci Bögre</td>
<td>BS2040 and BS3540 Coordinator.</td>
<td>Molecular Biology; the cell cycle; cell-signalling; proteomics; cancer biology.</td>
<td>Elucidation of signalling mechanisms that regulate plant cell division and growth; mitogen-activated protein kinases and phospholipid-activated protein kinases.</td>
</tr>
<tr>
<td>Professor Mark Brown</td>
<td>Head of CEEB Research Group; Careers Officer; BS2010 and BS3010 Coordinator.</td>
<td>Invertebrate biology; evolutionary ecology; conservation biology.</td>
<td>Evolutionary ecology of host-parasite associations. Conservation biology of insects, particularly bumble bees. Biology of social insects.</td>
</tr>
<tr>
<td>Dr Philip Chen</td>
<td>Admissions Tutor; BS2560 Coordinator.</td>
<td>Pharmacology and neuroscience.</td>
<td>The pharmacology and function of neurotransmitter receptors; structure and function of the NMDA-subtype of ionotropic glutamate receptor.</td>
</tr>
<tr>
<td>Staff Member</td>
<td>Managerial Responsibilities</td>
<td>Teaching areas</td>
<td>Research Interests</td>
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<tr>
<td>Professor Simon Cutting</td>
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<td>Bacterial sporulation and germination.</td>
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<td></td>
<td>Developmental gene expression in B. subtilis.</td>
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<td></td>
<td>Prokaryotic molecular genetics.</td>
</tr>
<tr>
<td>Dr Paul Devlin</td>
<td>BS1070 Coordinator.</td>
<td>Genetics; plant adaptation to climate change; circadian rhythms.</td>
<td>Plant responses to light. Plant circadian clocks.</td>
</tr>
<tr>
<td>Professor George Dickson</td>
<td></td>
<td></td>
<td>Molecular basis of human inherited diseases.</td>
</tr>
<tr>
<td>Dr Shobana Dissanayake</td>
<td>Schools Liaison and Outreach Officer, BS2005 and BS3510 Coordinator.</td>
<td>Molecular and medical microbiology.</td>
<td>The human response to infectious disease particularly tuberculosis.</td>
</tr>
<tr>
<td>Professor Paul Fraser</td>
<td>Head of Plant Molecular Sciences Research Group; Impact Officer</td>
<td>Biochemistry</td>
<td>Plant molecular biology. Biosynthesis, regulation and metabolic engineering of carotenoids and other isoprenoids.</td>
</tr>
<tr>
<td>Professor Alan Gange</td>
<td>BS2090 Coordinator.</td>
<td>Field ecology; insect, plant and microbial ecology.</td>
<td>Ecological interactions between plants, insects and symbiotic fungi. Links between soil biodiversity and above-ground diversity.</td>
</tr>
<tr>
<td>Professor Director of Research; Biodiversity;</td>
<td>Mathematical modelling to</td>
<td></td>
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</tr>
<tr>
<td>Staff Member</td>
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<td>Research Interests</td>
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<tr>
<td>Vincent Jansen</td>
<td>Deputy Head of School; BS3120 Coordinator and BS3020 joint Coordinator.</td>
<td>populations and communities biology; evolution.</td>
<td>study population dynamics and evolution in ecological and biomedical systems.</td>
</tr>
<tr>
<td>Dr Eli Leadbeater</td>
<td></td>
<td>Molecular genetics and applications in biology.</td>
<td>Behavioural ecology: Evolution of social behaviour and learning, using social insect model systems.</td>
</tr>
<tr>
<td>Professor Gerhard Leubner</td>
<td>Degree Validation Committee; BS3520 Coordinator.</td>
<td>Biochemistry; seed biology.</td>
<td>Molecular basis of seed dormancy and germination. Cross-species approaches to germination, dormancy and quality of plant seeds.</td>
</tr>
<tr>
<td>Dr Enrique López-Juez</td>
<td>Library representative; BS2020 and BS2060 Coordinator.</td>
<td>Vascular plants; plant physiology; developmental biology.</td>
<td>The molecular genetics of the photoregulation of plant development.</td>
</tr>
<tr>
<td>Dr Walter Lucchesi</td>
<td>Placements and Careers Liaison Officer; Student Experience Officer; BS1090, BS2150 and BS2540 Coordinator.</td>
<td>Immunology, biochemistry</td>
<td>Molecular basis of memory and development of autistic disorders; particular attention to the modelling of synaptic protein interactions in health and disease</td>
</tr>
<tr>
<td>Dr James McEvoy</td>
<td>Chair of the Sub-Board of Examiners; Academic Coordinator for Molecular Biosciences; Schools Liaison and Outreach Officer; BS1030 and BS2510 Coordinator.</td>
<td>Principles of Molecular Bioscience.</td>
<td>Biological redox processes, particularly catalysis, including photosystem II and EFT dehydrogenase.</td>
</tr>
<tr>
<td>Staff Member</td>
<td>Managerial Responsibilities</td>
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<td>Research Interests</td>
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</tr>
<tr>
<td>Dr David Morritt</td>
<td>Head of School; BS2001X and BS3180 Coordinator.</td>
<td>Biodiversity of animals; zoology; marine biodiversity and ecology.</td>
<td>Physiological ecology and ecotoxicology of inter-tidal and aquatic invertebrates. Colonisation of land by crustaceans. Invasive and threatened species in the River Thames.</td>
</tr>
<tr>
<td>Dr Jenny Murdoch</td>
<td>Director of Teaching; Study Abroad and Visiting Student Tutor; BS3570 and BS3595 Coordinator.</td>
<td>Embryology; endocrinology.</td>
<td>Molecular genetics of mammalian development. Neural tube defects and patterning. Sonic hedgehog and planar cell polarity signalling pathways.</td>
</tr>
<tr>
<td>Dr Sarah Papworth</td>
<td>BS2120 and BS3060 Coordinator</td>
<td>Conservation biology</td>
<td>Human and animal behaviours which impact biodiversity conservation</td>
</tr>
<tr>
<td>Dr Linda Popplewell</td>
<td>BS2140 Coordinator</td>
<td>Animal behaviour</td>
<td>Physiology and adaptation of animals in extreme conditions.</td>
</tr>
<tr>
<td>Dr Steve Portugal</td>
<td>BS3160 Coordinator</td>
<td>Behavioural ecology; evolution.</td>
<td>Evolutionary processes that generate biological diversity; ecological speciation.</td>
</tr>
<tr>
<td>Professor Pankaj Sharma</td>
<td>BS3600 Coordinator</td>
<td>Clinical neurology and stroke</td>
<td>Clinical neurology; cardiovascular genetics.</td>
</tr>
<tr>
<td>Dr Mikhail Soloviev</td>
<td>Director of Graduate Studies; BS2520 and BS2570 Coordinator; BS3020 joint Coordinator.</td>
<td>Proteomic technologies for profiling protein expression and molecular diagnostics.</td>
<td>Physical chemistry techniques. Proteomics.</td>
</tr>
<tr>
<td>Staff Member</td>
<td>Managerial Responsibilities</td>
<td>Teaching areas</td>
<td>Research Interests</td>
</tr>
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<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Dr Tony Stead</td>
<td>Admissions Tutor</td>
<td>Plant structure and function; plant reproduction; plant ultrastructure.</td>
<td>Post-harvest physiology and molecular biology of senescence in flowers, herbs and leafy vegetables. The use and development of novel microscopy techniques (especially X-ray Microscopy).</td>
</tr>
<tr>
<td>Dr Becky Thomas</td>
<td>Academic Coordinator for Organismal Biosciences; Disability and Dyslexia Services Officer; BS1040 Coordinator</td>
<td>Biodiversity of animals; Zoology; Ecology, Behaviour.</td>
<td>Conservation ecology of birds and mammals; how people's decisions affect the ecology of wild species; urban ecology.</td>
</tr>
<tr>
<td>Dr Jorge Tovar-Torres</td>
<td>Exams Officer; BS3030 Coordinator.</td>
<td>Biology of parasitic diseases; molecular and medical microbiology; parasitology; mitochondrial and eukaryotic cell evolution.</td>
<td>Mitochondrial and eukaryotic cell evolution. Mitosome biology and function in the intestinal human pathogens <em>Giardia</em> and <em>Entamoeba</em>. Parasite differentiation. Molecular parasitology.</td>
</tr>
<tr>
<td>Dr Francisco Ubeda de Torres</td>
<td>School Seminar Coordinator; BS2160 Coordinator.</td>
<td>Natural selection and evolution.</td>
<td>Evolution of genomic and social structures driven by conflict. Mathematical modelling and predictions in evolutionary theory.</td>
</tr>
<tr>
<td>Dr Christopher Wilkinson</td>
<td>Biological Safety Officer; BS2530 Coordinator.</td>
<td>Cell biology and development.</td>
<td>The role of centriole-associated proteins in vertebrate development, both as part of cilia and the centrosome.</td>
</tr>
<tr>
<td>Professor Robin Williams</td>
<td>Head of Biomedical Sciences Research Group; BS3530 Coordinator.</td>
<td>Molecular cell biology; cell signalling; neuroscience.</td>
<td>Molecular cell biology of bipolar disorder and epilepsy. Drug function and targets.</td>
</tr>
<tr>
<td>Dr Rafael Yáñez</td>
<td>Director of Planning &amp; Resources; BS3590 Coordinator.</td>
<td>Molecular genetics; genetic diseases.</td>
<td>Gene therapy; gene repair; viral vectors; neurological disease.</td>
</tr>
</tbody>
</table>