Medical Biology 1

BIME08004

SCQF Level 8 – 20 Credit Course

http://www.drps.ed.ac.uk/16-17/dpt/cxbime08004.htm

Course Handbook

2016 - 2017

Biomedical Teaching Organisation
The University of Edinburgh
Doorway 3, Medical School
Teviot Place
Edinburgh
EH8 9AG

Course Organiser: Carole Torsney - Carole.Torsney@ed.ac.uk
Course Administrator: Mary Cummings – Mary.Cummings@ed.ac.uk

NOTES

Name……

My Facilitated Discussion Group……. Day……. Time……. Room……

Dates: Weeks 2/4/6/8 or Weeks 3/5/7/9

FGD members:

Name	e-mail	Phone

Practical Session: Date……. Time……

If you require this document or any of the internal University of Edinburgh online resources mentioned in this document in an alternative format please contact Mary Cummings – Mary.Cummings@ed.ac.uk or 0131 651 3094.

Medical Biology 1
Course Handbook 2016-2017

See the Learn course website
for further information and current notices

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DISCLAIMER
Every effort has been made to ensure that the information contained in this document is correct at the time of going to press. However, it will not form part of any contract between the University and a student and must be read in conjunction with the Terms and Conditions as set out in the Degree Regulations and Programme of Study.

SUMMARY OF TIMETABLES

See later sections for full details

LECTURE TIMETABLE

Lectures will be in the Swann Lecture Theatre at King's Buildings
Lectures begin promptly at 4.10 pm and end at 5pm, unless shown otherwise

Week	Date	Lecture	Title	Lecturer
1	Mon 16 Jan	1	Introduction to the course	CT
	Tues 17 Jan	2	Homeostasis	MD
	Thur 19 Jan	3	Homeostasis	MD
2	Mon 23 Jan	4	Genetic basis of disease	JOM
	Tues 24 Jan	5	Genetic basis of disease	JOM
	Thur 26 Jan	6	Genetic basis of disease	JOM
3	Mon 30 Jan	7	Reproductive biology	JMU
	Tues 31 Jan	8	Reproductive biology	JMU
	Thur 02 Feb	9	Reproductive biology	JMU
4	Mon 06 Feb	10	Brain, behaviour, obesity	PT
	Tues 07 Feb	11	Brain, behaviour, obesity	JM
	Thur 09 Feb	12	Brain, behaviour, obesity	JM
5	Mon 13 Feb	13	Stress and its management	CC
	Tues 14 Feb	14	Stress and its management	CC
	Thur 16 Feb	15	Stress and its management	CC
	Innovative Learning Week: Mon 20 – Fri 24 February			
6	Mon 27 Feb	16	Infectious diseases	DS
	Tues 28 Feb	17	Infectious diseases	DS
	Thur 02 Mar	18	Infectious diseases	DS
7	Mon 06 Mar	19	Birth defects	TT
	Tues 07 Mar	20	Birth defects	TT
	Thur 09 Mar	21	Birth defects	TT
8	Mon 13 Mar	22	Pain and its Management	CT
	Tues 14 Mar	23	Pain and its Management	CT
	Thur 16 Mar	24	Pain and its Management	CT
9	Mon 20 Mar	25	Channelopathies	MJ
	Tues 21 Mar	26	Channelopathies	MJ
	Thur 23 Mar	27	Channelopathies	MJ
10	Mon 27 Mar	28	Stem cell therapy	SC
	Tues 28 Mar	29	Stem cell therapy	SC
	Thur 30 Mar	30	Stem cell therapy	SC

Lecturers:

MJ	Mandy Jackson	JOM	John Mason
CC	Celine Caquineau	DS	Deborah Shaw
MD	Mayank Dutia	JMU	Joanne Murray
PT	Paul Le Tisser	TT	Thomas Theil
SC	Siddharthan Chandran	CT	Carole Torsney
JM	John Menzies		

Note: Lecturers will provide their lecture notes/PowerPoint file in advance on Learn, and will respond via the MB1 Learn academic Discussion Board to specific queries arising from their lectures during the week following their last lecture. The latter enables the whole class to benefit from and join in academic discussions, which is of greater educational value to the class than individual e-mails. Lecture recordings will be made available on Learn.

DISCUSSION GROUP TIMETABLE AND DEADLINES

Note: These are **NOT** tutorials, but progressive **fixed group activities** which require you to undertake four successive exercises and submit two personal reports for assessment and participate in a group oral presentation as a member of a specified team within a group. See the following page for details of groupings and venues

Week	Group	Topic	Other activity	Deadline for submitting work online
1	All groups	Check group allocation	1A-1O prepare Topic 1	
2	1A-1O	Discuss Topic 1	2A-2O prepare Topic 1	
3	2A-2O	Discuss Topic 1	1A-1O Prepare Topic 2	
4	1A-1O	Discuss Topic 2	2A-2O Prepare Topic 2	Topic Report 1 **1A-1O 12 noon on Monday 6 Feb** via Learn
5	2A-2O	Discuss Topic 2	1A-1O Background reading for group oral presentation	Topic Report 1 **2A-2O 12 noon on Monday 13 Feb** via Learn
Festival of Creative Learning: Mon 20 – Fri 24 February				
6	1A-1O	Feedback on Topic 1 / plan group oral presentation	2A-2O Background reading for group oral presentation	
7	2A-2O	Feedback on Topic 1 / plan group oral presentation	1A-1O Prepare group presentations	
8	1A-1O	**PowerPoint presentation** – give an assessed group oral presentation	2A-2O Prepare group presentations	Topic Report 2 **1A-1O 12 noon on Monday 13 March** via Learn
9	2A-2O	**PowerPoint presentation** – give an assessed group oral presentation		Topic Report 2 **2A-2O 12 noon on Monday 20 March** via Learn **1A-1O:** Submit PowerPoint Presentation to Learn by **12 noon on Monday 20 March**
10	All	Submit PowerPoint presentation to Learn		**2A-2O:** Submit PowerPoint Presentation to Learn by **12 noon on Monday 27 March**

See list in Learn showing composition and location of groups 1A-1O and 2A-2O, which **meet on alternate weeks**.

ONLINE SIGN UP FOR FGD SESSIONS – Please complete the online sign up on Learn for the FGD sessions by 12 noon on Wednesday 18 January. The number of spaces in each group is capped and once a group is full you will not be able to join it. It is essential that you consult your timetable and choose a group you are able to attend. If you do not complete the sign up you will be allocated to a group automatically. Confirmation of all groups will be posted on Learn on Friday 20 January.
TIP: Any problems regarding group allocations must be reported to the course administrator by **Monday 23 January 2017.** Non-attendance will be recorded.

NB! Work not submitted for assessment by the deadline will be penalised at standard rate, see (Late Submission of Work) Appendix I.
TIP: Submit work for assessment at least **one day before the deadline**, to allow for unexpected glitches in preparing and submitting the file. It is bad work practice to leave things to the last minute, and you may end up being penalised as a result of computer problems or other unexpected events.

DISCUSSION GROUP VENUES

Each group 1A-1O to 2A-2O will have four teams, sub-labelled α, β, γ, δ

Note: These are NOT tutorials: they are **facilitated group activities** which require you to attend as a member of a specified group and to undertake four successive exercises. As a member of a designated team within your specific group you are required to submit personal reports on two FGD topics for assessment, and to prepare and give one team presentation on an allocated topic, which will also be formally assessed. Attendance will be recorded by the Facilitator.

See maps in Appendix II for locations

Week	Group	Date / Day	Time	Location
2, 4, 6, 8	1A	Tuesday	10-11	Biomedical Teaching Room 7,BMTO
	1B	Tuesday	10-11	Room 4319A, JCMB, KB
	1C	Tuesday	10-11	Room 4312, JCMB, KB
	1D	Tuesday	10-11	Room 4319B, JCMB, KB
	1M	Tuesday	10-11	Classroom 7, Hudson Beare Building, KB
	1E	Tuesday	11-12	Biomedical Teaching Room 7,BMTO
	1F	Tuesday	11-12	Biomedical Teaching Room 9,BMTO
	1G	Tuesday	11-12	Biomedical Teaching Room 12,BMTO
	1H	Tuesday	11-12	Room 4312, JCMB, KB
	1N	Tuesday	11-12	Classroom 6, Hudson Beare Building, KB
	1I	Wednesday	3-4	Biomedical Teaching Room 7,BMTO
	1J	Wednesday	3-4	Biomedical Teaching Room 12,BMTO
	1K	Wednesday	3-4	Biomedical Teaching Room 9,BMTO
	1O	Wednesday	3-4	Classroom 6, Hudson Beare Building, KB
	1L	Friday	4-5	Biomedical Teaching Room 7,BMTO
3, 5, 7, 9	2A	Tuesday	10-11	Biomedical Teaching Room 7,BMTO
	2B	Tuesday	10-11	Room 4319A, JCMB, KB
	2C	Tuesday	10-11	Room 4312, JCMB, KB
	2D	Tuesday	10-11	Room 4319B, JCMB, KB
	2M	Tuesday	10-11	Classroom 8, Hudson Beare Building, KB
	2E	Tuesday	11-12	Biomedical Teaching Room 7,BMTO
	2F	Tuesday	11-12	Biomedical Teaching Room 9,BMTO
	2G	Tuesday	11-12	Biomedical Teaching Room 12,BMTO
	2H	Tuesday	11-12	Room 4312, JCMB, KB
	2N	Tuesday	11-12	Classroom 6, Hudson Beare Building, KB
	2I	Wednesday	3-4	Biomedical Teaching Room 7,BMTO
	2J	Wednesday	3-4	Biomedical Teaching Room 12,BMTO
	2K	Wednesday	3-4	Biomedical Teaching Room 9,BMTO
	2O	Wednesday	3-4	Classroom 6, Hudson Beare Building, KB
	2L	Friday	4-5	Biomedical Teaching Room 7,BMTO

PRACTICAL PROJECT AND REPORT

All information relating to the Practical Project can be found on the MB1 Learn site

TIMETABLE FOR PRACTICAL PROJECT

Venue: East/West Teaching Labs, BMTO, Doorway 3, Medical School, Teviot Place
(see map in Appendix II for location)

Practical work –

The single practical session is repeated 12 times:

Week 2
Tuesday 11-12
Wednesday 11-12
Wednesday 12-1

Week 3
Tuesday 10-11
Tuesday 11-12
Wednesday 11-12
Wednesday 12-1
Wednesday 1-2

Week 4
Tuesday 11-12
Wednesday 11-12
Wednesday 12-1
Wednesday 1-2

- Please complete the online sign up on Learn for the Practical sessions by **12 noon on Wednesday 18 January**. The number of spaces in each group is capped and once a group is full you will not be able to join it. It is essential that you consult your timetable and choose a group you are able to attend. If you do not complete the sign up you will be allocated to a group automatically. Confirmation of all groups will be posted on Learn on Friday 20 January.

- **TIP**: Please check carefully the confirmation of the group you have been allocated. Any problems regarding group allocations must be reported to the course administrator by **Monday 23 January 2017.** Non-attendance will be recorded.

- Class practical data to be uploaded to Learn in a Minitab file during weeks 6-7

- Practical project report: submission via Learn, by **12.00 noon on Monday 3 April 2017**

- Use the appropriate front sheet (see Learn project report details) to give your roll number, project report title and word count and submit only a Word (.doc) file

- Marking will be completed as soon as possible.

- A grade and feedback for the Project Report will be provided to students via Learn once **all the reports have been submitted** and the **assessment completed**. We aim to do this within three weeks of the submission deadline.

- See Appendix I for information about Special Circumstances

MEDICAL BIOLOGY 1
Introduction to the Course

AIMS OF COURSE (Broad intentions of the course)

1 To provide an introduction to the scientific basis of modern medicine and the role of biological sciences in the understanding and treatment of disease.

2 The course is aimed at a general audience of students who have an interest in human biology and disease. A general background in biology is assumed, and non-biologists will have to do some self-directed learning to understand basic biology. Those who have already studied biology may find some of the initial introductory material elementary, but should remember that such material is novel for others in the class who have little or no knowledge of biology. Most of us can benefit from hearing and seeing a topic of which we have some knowledge being reviewed, and can learn from the experience.

3 Provide insight into various disciplines which may be studied in BSc Honours Biomedical Sciences degree programmes – i.e. give a taster of more advanced material covered in honours courses.

4 To provide a basic understanding of practical material relevant to biological sciences.

5 To develop personal skills in interpreting basic scientific research and communicating scientific ideas and information in a clear, accurate and well organised manner.

COURSE OBJECTIVES (Knowledge, skills and attitudes to be learned by students)

A series of lectures, facilitated group discussions, a practical class and assessed written and oral reports will provide the following:

1. Knowledge of the biological basis of a number of global health issues and diseases of current interest.
2. The ability to develop skills in assimilating information related to particular research topics and to prepare balanced, concise written accounts based on understanding and critical evaluation of evidence obtained from reading scientific publications and from participation in group discussions.
3. Development of oral presentation skills within a team setting.
4. Development of practical skills in measuring biological variables in a laboratory, recording, collating and analyzing the data statistically and graphically, and preparing concise summaries of the results. Reviewing, interpreting, integrating and discussing the findings in relation to published evidence, and presenting a referenced report as a project dissertation.

LEARNING OUTCOMES (To be assessed by examination or in-course assessment)

1. Demonstrate knowledge and a critical understanding of key aspects of basic biology as applied to certain global diseases, at a level appropriate for a first year undergraduate course. This will primarily be assessed by the exam, but will also be required for each element of ICA.
2. Demonstrate an ability to understand, critically appraise, integrate and interpret information from multiple sources and then communicate this in a clear and well-organised scientific manner in written reports and orally. This will be assessed by the facilitated group discussion reports.
3. Demonstrate an ability to understand, critically analyse and interpret experimental measurements relevant to medical biology and communicate this in the practical project report. This will be assessed by the project report.

IMPORTANT: PASSING THE COURSE

To pass the course at the first attempt, you are required to meet the following criteria:

- You must pass both the in-course assessment (ICA), which means achieving an overall mark of 40% or more in the ICA component, **AND** you must also achieve a mark of 40% or more in the May degree exam.
- You must have satisfied ALL of the Learning Outcomes in order to pass the course. To do this satisfactorily, you must submit the ICA FGD report on topic 2 and the practical report and participate in the presentation session.

If you fail to meet one or more of these criteria, you can attempt to pass the course according to the following rules:

1. If you fail the May degree examination (i.e. your exam mark is <40%), then you must resit the degree examination in August. The August resit examination will have the same structure and the same pass mark as the May examination. If your ICA mark is 40% or more, it will be carried forward to the August diet to calculate your overall mark.

2. If you fail to achieve a satisfactory ICA mark by the end of the course, you will have the opportunity to make good this deficiency by completing additional work over the summer, set by the Board of Examiners.

3. If you fail the May degree examination AND fail to achieve a satisfactory ICA mark by the end of the course, then you must resit the degree examination in August AND make good the ICA deficiency by completing additional work, set by the Board of Examiners. Your final mark for the course will be calculated using the exam mark from August.

IMPORTANT: To pass the course at the resit diet, you must have scored 40% or more for both your ICA and degree exam AND satisfied all of the learning outcomes.

It is clearly important that you turn up for the Discussion Sessions. If, for some reason, you miss a Discussion Session, you must catch up with what you missed by asking your fellow team members to brief you. **This is your responsibility as you will not be allowed to attend another group's discussion session.**

External Examiner

The **External Examiner** for the course is Prof. C Hawrylowicz, King's College, London. She will scrutinise the examination papers and some of your answer scripts, and will attend meetings of the Board of Examiners. The External Examiner has the important role of ensuring that all of our courses meet satisfactory standards, equivalent to those in other universities of similar status to this university. Please note that students should not make direct contact with the external examiner. Please contact the Course Administrator if you have any queries about the assessment process.

The **Chair of the Board of Examiners** is Dr John Mason.

COURSE STRUCTURE

Attendance at <u>ALL</u> elements of the course is COMPULSORY

If you have to miss a component of the course for a legitimate reason, you MUST inform the Course Administrator, Mary Cummings. Relevant medical certificates or letters relating to illness during the Course must be submitted, together with a Special Circumstances form, via your Personal Tutor.

See the website link in Appendix I for further information about Special Circumstances

The course comprises three components:

1. Lectures.

- There are 30 lectures during which expert members of staff will discuss a number of topics of current biomedical interest and importance. Typically each topic will be covered by three lectures given in a single week, on Monday, Tuesday and Thursday afternoons.
- The lecturer will provide references to further material related to the topic: text-book chapters, review articles, or other material to supplement the lecture. This material will be made available either on Learn, or in the University Library.
- Due to the wide range of topics offered in this course, there is no single text-book which is suitable, but we encourage use of general biology textbooks for answers to specific questions.
- The Learn Academic Discussion Board can be used to raise questions that you have been unable to resolve by reading. Such questions may be answered by fellow undergraduates or, during the week following a lecture series, by individual lecturers.

2. Facilitated Group Discussions (FGDs)

- These will be held on Tuesday, Wednesday and Friday, in small groups. Each Group will meet once every fortnight (see 'Discussion Group Venues, Page 4) and will have the same Facilitator at each meeting. Randomly mixing sub-groups is deliberate and intended to encourage you to meet and interact with people you do not know.
- Group Discussions will focus on a particular topic, as indicated in the timetable; a Study Pack related to that topic will be available on Learn beforehand. Typically, the Study Pack will contain three or more research articles on the relevant topic, and the Group Discussion will revolve around the articles in the Study Pack.
- Following the Group Discussion, you will submit for assessment via Learn your individual short report on the topic and related discussion (recommended maximum of 1000 words, excluding the list of references which you provide at the end of the report).
- Feedback will be provided by your group's Facilitator via Learn. See Facilitated Group Discussions section for further information.
- During your fourth and final Group session each team (sub-group) will give a PowerPoint presentation to the group, and subsequently place their team's presentation on the Learn presentation board.

3. Practical project.

- You will carry out a project, which involves attending a practical class on a designated date. During the practical, data will be collected from the whole class for subsequent analysis.
- You are required to analyse the collated data, which will be provided via Learn, and submit a concise report on your findings for assessment (See Project section and Learn/Practical project for further information).

ASSESSMENT

The course is assessed by a combination of in-course work (counting for 40% of the final marks) and a written Examination (60% of the final marks).

The **assessed in-course work** consists of the following:

1. Report on Group Discussion Topic 1 will be marked & you will receive formative feedback, including an indicative mark. The mark will not count towards the course mark.
1. Report on Group Discussion Topic 2 (20%)
2. Presentation (5%)
3. Practical Project Report (15%)

NB You are **required to submit** the ICA FGD report on topic 2 **AND** to contribute to both the preparation **and** delivery of the assessed team presentation (5% of the overall course assessment) **AND** submit the Practical Project Report.

Coursework submitted after the specified deadline will be recorded as late and a penalty will normally be applied (see appendix I for the link containing more information). Absence of a report will normally result in a score of 0% for that particular element of the course.

The written **Examination** (2 hours; 60% of the final mark), consisting of 2 sections:

Multiple Choice Questions (MCQs):

- This section will count for 50% of the Examination mark (i.e. 30% of the final mark). You will have to answer 40 questions. For each question you have to choose the one correct answer out of five possible answers.
- MCQs may cover Lecture material, the Project, and Group Discussion topics from the entire course. The difficulty of the questions is set so that satisfactory performance is signified by a mark of 40% or greater.

Extended Matching Questions (EMQs):

- This section will count for 50% of the Examination mark (i.e. 30% of the final mark).
- On a stated topic area a group of questions is set or a scenario is described. Candidates are offered a list of up to 26 possible responses from which to select the single best answer. The same list of options is used for more than one question.
- In these questions students have to apply knowledge rather than simply recall isolated facts.
- EMQs may cover Lecture material, the Project, and Group Discussion topics from the entire course.
- Details and examples will be placed on the Learn site in due course.

SUMMARY OF DEADLINES AND FEEDBACK DATES

ICA Component	Deadline	Date Mark/Feedback Received
FGD Topic 1 1A – 1O	Monday 6 Feb 12 noon	Monday 20 Feb
FGD Topic 1 2A – 2O	Monday 13 Feb 12 noon	Monday 27 Feb
FGD Topic 2 1A – 1O	Monday 13 March 12 noon	Monday 27 March
FGD Topic 2 2A – 2)	Monday 20 March 12 noon	Monday 3 April
Group Presentations – 1A – 1O	Week 8 (Presentation Powerpoint submitted by Mon 20 March 12 noon)	Mark received by Monday 27 March
Group Presentations – 2A – 2O	Week 9 (Presentation Powerpoint submitted by Mon 27 March 12 noon)	Mark received by Monday 3 April
Practical Report	Monday 3 April 12 noon	Friday 21 April

COMMON MARKING SCHEME

Examination Grades. Degree Examinations have a pass mark (score) of 40% and are graded according to the University's "Common Marking Scheme":

HONOURS			
			NON-HONOURS
Honours Class	Mark %	Grade	Non-Honours Description
	90-100	A1	
1st	80-89	A2	Excellent
	70-79	A3	
2.1	60-69	B	Very Good
2.2	50-59	C	Performance at a level showing the potential to achieve at least a lower second class honours degree
3rd	40-49	D	Pass, may not be sufficient for progression to an honours programme
	30-39	E	Marginal Fail
Fail	20-29	F	Clear Fail
	10-19	G	Bad Fail
	0-9	H	

COURSE ADMINISTRATION

ADMINISTRATIVE CONTACTS

Course Administrator: Miss Mary Cummings
Biomedical Teaching Organisation
Doorway 3
Medical School
Teviot Place

Email: Mary.Cummings@ed.ac.uk Phone: 0131 651 3094

Please contact the Course Administrator with all enquiries in the first instance. She can be found in the BMTO Reception, 1st Floor, Doorway 3, Medical School, Teviot Place. See Appendix II for a map, or get one online at: http://www.ed.ac.uk/maps/buildings/medical-school

Course Organiser Dr Carole Torsney
Hugh Robson Building

Email: Carole.Torsney@ed.ac.uk

Chair of the Board of Examiners: Dr John Mason
Hugh Robson Building

Email: John.Mason@ed.ac.uk

STAYING IN TOUCH: EMAIL AND LEARN

Log on to Learn regularly. Medical Biology 1 makes extensive use of Learn to provide additional resources and information beyond that given in the lectures. Please make sure you look regularly at Learn for news and late-breaking information, lecture handouts, supplementary reading, references, post-lecture academic discussion boards, feedback, information about the examinations, etc. Important announcements will also normally be displayed on the **Announcements** section of MB1 Learn, but hard copies will NOT be posted on a notice board.

The Course Learn site is the definitive source of information, alterations, revisions and news.

For general guidance on accessing and using Learn see:
http://www.ed.ac.uk/schools-departments/information-services/services/learning-technology/virtual-environments/learn/students/student-help /

Check your University e-mail account regularly. We will use e-mail to contact individual students or the class as a whole. Messages sent to you will contain important information, relating to, for example, timetabling changes, Group activities, the Project, or the examination or other assessments. It is essential that you read your e-mail at least every 2-3 days because **we will assume that you have read your messages.** Please note that we will only send e-mails to your University .sms account (not to Hotmail etc). If you choose to forward your .sms mail to a remote host, you should still check your .sms mailbox, otherwise it may fill up and accept no more messages.

Submitting your assignment electronically through Learn

Why do I need to submit my assignment electronically?

Your assignments will be run through a plagiarism detection system, Turnitin, via Learn. This system will highlight any plagiarised work where the source may be from the web, books, or other students' work.

How do I submit my assignment electronically?

1. There are two stages to submitting your assignment electronically. You must **upload** the file and then **submit** it. Make sure your file is named correctly and you have saved it somewhere you can find it.
2. From the course content homepage, find the dropbox for the component you wish to submit.
3. Chose the component of the assignment you are submitting. Click "**>> View/Complete**" underneath the submission box. Submission boxes are indicated by this Turnitin Icon: 
4. To **upload** the assignment file:
   - 4.1. Press the **Submit** button. Check that your name is correct and enter your submission title, then select where you will upload your assignment from. You can link to your Dropbox or Google Drive, or can upload from your computer.
   - 4.2. When choosing "from this computer" a normal File Open dialogue box will appear; navigate to find your assignment on your computer as you would usually. Click on the file and press the Open button.
   - 4.3. A window will open telling you how the transfer is progressing; once the upload is done you will be presented with a summary (this may take some time if the file is large, or your internet connection slow). This page is just a confirmation step – press Confirm to continue to upload your file, or Cancel to upload another.
5. Once the file has been uploaded, you will see a digital receipt and will also receive an email from Turnitin UK confirming successful submission. DO NOT navigate away until you have confirmed your submission was successful as errors at this stage will not be accepted as a valid excuse for late submission!
   - 5.1. When returning to the Assignment Inbox you can click **view** to see your submitted file.

You must submit your written assignments as a **Word document (.doc; .docx).**

Microsoft Publisher (.pub), Open Office (.odt), Microsoft Works (.wps) and Microsoft PowerPoint (.ppt) files **cannot** be processed by the automated system within Turnitin.

TIP: Backup your work on a USB stick or CD/DVD and ensure that you submit the **final version** of the correct file – check the file name carefully to avoid submitting the wrong file.

You will be able to update your submission at any point until the deadline. Please make sure your submission is correct, as if you do submit the wrong file or type of file, **your work cannot be marked, no feedback will be provided, and you will score 0%.**

Any other problems?

If you are experiencing problems with Learn please see the Information Services Learn guide at: http://www.ed.ac.uk/schools-departments/information-services/learning-technology/virtual-environments/learn

NOTE: Please keep your assignment files virus free! The IS helpdesks in the main library and Noreen and Kenneth Murray Library (KB) can advise you on how to ensure your computer stays virus free.

If you have specific problems related to Medical Biology 1, contact the Course Administrator, Mary Cummings.

STUDENT/STAFF LIAISON COMMITTEE

The University has a well-established **class reps system**, enabling students to raise general issues of concern about their courses. Reps are usually elected or can volunteer at the beginning of the year, and their role is to communicate the views of the students on the course to the people responsible for running it. This might include general feedback on the course, and also more specific concerns, for example deadline clashes, difficulties in accessing resources, comments on the teaching methods used etc. Students can also join their **School Council**, made up of School reps elected in the Edinburgh University Student's Association elections, class reps and any other interested students from that School. The School Council is where to raise concerns, share ideas, and deal with issues that go beyond a specific course. Members of the School Council will also sit on **School Committees** alongside academic staff making decisions on matters such as library/computing provision and changes to the way that courses are taught and assessed. School Councils are closely linked to EUSA's **Student Representative Council**, with School Reps attending Edinburgh University Student's Association's Teaching and Learning Committee and Academic Services Committee to represent the views of students from their School.

Through this mechanism, all students can contribute to debates on issues like barriers to access to honours, study space, library opening hours, and much, much more. In this way, there is student involvement at course level, School level, all the way up to the University's most important decision-making committees. This means students really can make a difference. If you are interested in getting involved, contact Patrick Garratt, Edinburgh University Student's Association's Vice-President Academic Affairs and also check out the website at http://www.eusa.ed.ac.uk

Class reps will be identified at the start of Semester 2 and will have to attend a Staff/Student Liaison Committee meeting towards the end of the Semester. Details will be placed on Learn in the Feedback folder, where you can also see the report from last-years Staff-Student Liaison committee meeting.

LECTURERS

Dr Celine Caquineau	Biomedical Teaching Organisation, Medical School, Teviot Pl	c.caquineau@ed.ac.uk 0131 650 2995
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Prof Mayank Dutia	Centre for Integrative Physiology Hugh Robson Building	M.B.Dutia@ed.ac.uk 0131 650 3252
Dr Mandy Jackson	Centre for Integrative Physiology Hugh Robson Building	Mandy.Jackson@ed.ac.uk 0131 650 7518
Dr John Mason	Centre for Integrative Physiology Hugh Robson Building	John.Mason@ed.ac.uk 0131 650 6820
Dr John Menzies	Centre for Integrative Physiology Hugh Robson Building	John.Menzies@ed.ac.uk 0131 651 1711
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LECTURES

RECORDING LECTURES

All recordings of lectures that are made available to students via Blackboard Learn or by any other means (such as personal recordings made by students) are for individual use only, for the purposes of personal study. It is a disciplinary offence to use the material for any other purpose or to distribute the material. All Intellectual Property Rights in the recording remain with the University and the lecturer. By accessing this recording you are agreeing to these conditions of use.

Lectures are being recorded to provide a tool for revision and consolidation of material - students MUST still attend the lectures. Lecture streaming is NOT a substitute for attending the lectures.

LECTURE SUMMARIES

The following are short summaries of the topics to be covered in the lectures. You may find it useful to consult general biology, physiology or pharmacology textbooks, Learn and other resources in advance of each lecture, using the following as a guide. Individual lecturers have been asked to make their presentations or notes available on MB1 Learn/lectures in advance of their lectures, wherever possible.

Homeostasis (Lectures 2 & 3)

Prof Mayank Dutia – Tuesday 17/01/17 and Thursday 19/01/17

The lectures will discuss: examples of biological homoeostasis (the maintenance of a stable internal environment); the disturbance of homeostasis either as a cause of disease, or as a result of disease; general principles of control systems (sensors, controllers, effectors, set-point, feedback); adaptation in biological control systems; and the importance of understanding normal physiological control systems and their disturbance in disease, as a classical approach to the scientific basis of disease.

Learning Objectives:

Students should be able to:

- Describe how a simple control system works.
- Give examples of several physiological controls systems of current medical interest, including the sensors, effectors, and variables concerned in each case where known.
- Give examples of adaptation in biological control systems.
- Give examples of disorder of homeostasis as a cause of disease.
- Give examples of disorders of homeostasis resulting from disease.
- Give examples of medical advances resulting from an understanding of physiological control systems and their disorders.

Genetic Basis of Disease (Lectures 4-6)

Dr J Mason – Monday 23/01/17, Tuesday 24/01/17 and Thursday 26/01/17

We have known for many years that mutations can lead to inherited diseases, but the extent to which our health is affected by our genes has been realised only relatively recently. Information from the human genome project, and associated technical advances, offers a greater insight into the effect of genes on health than ever before, and raises the possibility that we may be able to do something about it.

As a result of these lectures you should understand:

- the difference between sex linked and autosomal inheritance
- the meaning of dominance and recessiveness
- that mitochondria have genes
- the difference between simple and complex genetic diseases

- that cancer is a genetic disease
- that health and disease are the result of an interaction between genes and the environment
- the basic properties of the human genome
- how disease associated genes can be identified
- what is meant by personalised medicine

Reproductive Biology (Lectures 7-9)

Dr J Murray – Monday 30/01/17, Tuesday 31/01/17 and Thursday 02/02/17

- There are many reasons for studying reproductive biology: not least for understanding how your own body works. Studies on the male and female gametes, fertilization and early embryo development have converged with findings on endocrine, ovarian and uterine physiology to enable the development of new assisted reproductive technologies (ART). ART not only provides solutions to problems with human fertility, it also has applications in a wide range of other species (animals of agricultural, conservation and/or veterinary importance). Many techniques in biomedical sciences rely on a basic understanding of reproductive biology, for example producing conditional knock out mouse models. In these three lectures you will receive an introduction to: gametogenesis; the reproductive systems of the male and female; and the menstrual cycle. These three introductory lectures will extend your current knowledge and understanding by providing the scientific basis of fundamental aspects of reproductive biology.

Brain, Behaviour, Obesity (Lectures 10-12)

Dr P Le Tissier – Monday 06/02/17 and Dr J Menzies – Tuesday 07/02/17 and Thursday 09/02/17

Brain and Behaviour 1
Hormones, the pituitary gland and reproductive behaviour - Dr P Le Tissier (Lecture 10)
In this lecture we will give an overview of the principles of endocrine secretion, signalling and feedback mechanisms. We will explore the body's endocrine systems and discuss how the brain and pituitary gland control certain behaviours, taking gonadal sex steroids as examples of key signals in the control of reproductive systems.

Brain and Behaviour 2
Sexual and Social Behaviour - Dr J Menzies (Lecture 11)
In this lecture we will explore the control of sexual behaviours by gonadal sex hormones. We will also look at the key behaviours mediated by oxytocin. Oxytocin is secreted into the blood and is essential in parturition and lactation. Oxytocin is also released into the brain and plays a critical role in more complex maternal behaviours and in pair-bonding.

Brain and Behaviour 3
The Brain, Hormones & Appetite - Dr J Menzies (Lecture 12)
In this lecture we will explore how the brain and peripheral hormones interact to control appetite. We will highlight issues associated with dysfunctional appetite control, focusing on the global obesity epidemic, and discuss two key appetite-related hormones: leptin and ghrelin.

Stress and its management (Lectures 13 – 15)

Dr C Caquineau – Monday 13/02/17, Tuesday 14/02/17 and Thursday 16/02/17

Responding to Stress (Lecture 13)
The meaning of stress as a real or threatened disturbance of normal function will be discussed. The internal and external threats that signal stress will be considered. The biological systems in the body that function to defend the individual from stress will be outlined. This will include a description of the rapid hormonal and autonomic nervous system responses to acute stress. The hormone messengers involved will be described. The immediate actions of the stress hormones and the effects of the autonomic nervous system adjustments will be described. How these actions together automatically adjust many of the body's activities will be explained. Medical conditions in which the stress response systems mal-function will be illustrated.

Coping with Stress (Lecture 14)
The ways in which different types of stress are perceived and processed in the brain will be discussed. This will include a description of the pivotal role of the hypothalamus in organising hormonal and neural responses to stress that help to restore normality. The role of brain regions responsible for emotions that accompany stress will be described. The mechanisms involved in stress hormone response to infection will be outlined. There will be focus on the importance of the hypothalamus-pituitary-adrenal axis in producing stress hormones, how their secretion can be measured, and how their secretion is controlled by the brain; this will include explanation of how the daily rhythm of this system is automatically matched to an individual's activity and feedback mechanisms.

Too Much Stress (Lecture 15)
Why can stress be bad? The consequences of over- or under-activity of the stress hormones will be described, from human disorders and animal models. This will include relating excess production of adrenal hormones to abnormal states, such as hypertension, heart disease, obesity, diabetes mellitus (type II), and depression. The consequences of chronic stress on mental (depression and anxiety) and physical health (obesity) will be considered, and how stress hormones may be involved. This discussion will lead to consideration of drug-based treatments for stress-related illnesses. Why some individuals may be more or less prone to stress, and be more or less likely to experience 'stress-related' mental or physical ill-health will be considered, including the concept of adverse 'programming' in early life or later propensity to ill-health, as well as genetic factors.

Learning Objectives:

- Understanding the meaning of stress in terms of a threatening biological disturbance.
- Knowledge of the biological and behavioural mechanisms that are automatically activated by acute stress.
- Knowledge and understanding of how these mechanisms adjust the body's activities to optimise responses to stress.
- Outline knowledge of the anatomical organisation of the brain, and pathways, as organised for stress processing.
- Understanding of how different types of stress are interpreted and converge to produce common responses.
- Understanding of how this organisation leads to co-ordinated endocrine, autonomic and behavioural responses to stress.
- Appreciation of how stress responses can be measured.
- Appreciation of the co-ordinating role of the brain's biological clock in preparing to meet the day's challenges.
- Knowledge of the principal adverse consequences that are attributable to prolonged exposure to stress hormones.
- Understanding of how certain mental illnesses are considered to have a physical origin in excess exposure to stress, and to stress hormones.
- Appreciation of the implications for rational drug design of the concept that depression and obesity are stress-related.
- Understanding of how early life experiences can adversely programme stress responsiveness.

Infectious diseases (Lectures 16-18)

Dr D. Shaw – Monday 27/02/17, Tuesday 28/02/17 and Thursday 02/03/17

Infectious diseases remain a significant global problem killing millions of people each year and reducing the quality of life for many more. The severity of an infectious disease is dictated by the balance between a pathogen's ability to cause damage and impair normal host function and the host's ability to resist and remove the pathogen. In this set of lectures the basis of pathogenesis will be discussed, starting with the virulence factors associated with disease and progressing to the host immune response. The scientific knowledge underpinning advances in prevention and treatment will also be explored. Specific examples of disease will be detailed in the context of scientific and medical research, as well as socioeconomic factors, to explore how future biomedical research may help reduce this continuing problem.

Learning objectives

- Understand the difference between infection and infectious disease and define the associated terms pathogenesis and virulence
- Give examples of virulence factors and detail how they can cause damage to a host
- Understand how humans respond to infection
- Understand the main differences between the innate and adaptive immune system
- Give examples of both innate and adaptive immune components and detail how they protect the host.
- Understand the basis of vaccination and the concept of immune memory and herd immunity
- Explain how medical sciences has helped inform infectious disease control practice using named examples
- Understand new challenges that remain with infectious diseases

Birth defects (Lectures 19 – 21)

Dr T. Theil – Monday 06/03/17, Tuesday 07/03/17 and Thursday 09/03/17

Cyclopia and the treatment of medulloblastoma (Lecture 19)
For centuries, malformations of the human body have intrigued mankind and have been the basis for widespread myths and legends. In this lecture series, we will introduce the principal mechanisms that control the development of the human body. We will learn how analyses of model organisms have helped to understand developmental malformations in humans. In this first lecture, we will specifically discuss how the understanding of a human birth defect, cyclopia, has led to novel treatments of certain cancers including medulloblastomas.

Limb development (Lecture 20)
Malformations of the extremities occur with high frequency in humans. In this lecture, we will learn how the vertebrate limb is formed and how several signalling molecules interact to control limb development. We will also discuss how the general knowledge of the principal mechanisms governing limb development could help to obtain a better understanding of the devastating effects of thalidomide.

Development of the reproductive system (Lecture 21)
How an individual's sex is determined has been one of the greatest questions of embryology since antiquity. In this lecture, we will discuss primary (the determination of the gonads) and secondary (the bodily phenotype outside the gonads) sex determination and associated human syndromes.

Pain and its management (Lectures 22 – 24)

Dr C Torsney – Monday 13/03/17, Tuesday 14/03/17 and Thursday 16/03/17

The neural pathways that communicate 'pain' provide an essential warning system to protect an individual from harm. However, injury or disease can modify these neural pathways and lead to debilitating chronic pain that greatly reduces an individual's quality of life. Interestingly, injury/disease does not result in chronic pain in all individuals. It is becoming increasingly clear that there are complex gene-environment interactions that determine our 'risk' of developing chronic pain. Analgesic treatments for these conditions are generally only partially effective, ineffective or they have adverse side effects or abuse potential. Therefore, significant effort is being made to develop novel therapies.

The first lecture will introduce the neural pathways that communicate pain, their modification in chronic pain conditions and 'risk factors' for chronic pain. The second lecture will detail the biology of currently used analgesics and outline efforts to develop urgently needed novel therapies. The third lecture will highlight the specific challenges to assessing and managing pain in neonates.

Learning objectives

Students should be able to:
- Describe the neural pathways that communicate pain and understand their importance
- Describe how 'pain' neural pathways are modified in chronic pain conditions
- Give examples of chronic pain conditions
- Detail 'risk factors' for chronic pain

- Describe biology of currently used analgesics
- Understand the challenges to translating basic pain research into new clinical treatments
- Describe the 'developing' pain pathways
- Understand the challenges of pain management in neonates
- Describe the potential long term consequences of neonatal pain

Channelopathies (Lectures 25-27)

Dr M Jackson – Monday 20/03/17, Tuesday 21/03/17 and Thursday 23/03/17

Disorders of ion channels (channelopathies) are increasingly being identified. They include diseases of the cardiovascular, respiratory, urinary, endocrine, immune and nervous systems. These lectures will explore the fundamental role of ion channels in normal physiology and examine what biomedical research has revealed about the pathomechanism of channelopathies.

Learning objectives:

- Be familiar with the function of ion channels
- Understand what can give rise to a channelopathy
- Be able to give examples of channelopathies
- Describe disease mechanisms
- Be aware of how biomedical research is trying to identify novel targets for treatment

Stem Cell Therapy (Lectures 28 – 30)

Prof S Chandran – Monday 27/03/17, Tuesday 28/03/17 and Thursday 30/03/17

Tissue Stem Cells (Lecture 28)
Stem Cells are found within many tissues in adult animals. This lecture will describe what is meant by a stem cell, the key properties of stem cells and their normal behaviour in an organism. Methods to identify and study stem cells will also be described. Finally, we will discuss how stem cells are normally regulated and the limits of their normal potential.

Pluripotent Stem Cells (Lecture 29)
In this lecture the properties of pluripotent stem cells (PSCs) will be described. We will discuss how pluripotent stem cells can be genetically manipulated and how this can be used to produce 'designer' mice and / or personalised human stem cells. We will discuss how stem cells are normally regulated in the embryo and how we can use this knowledge to direct differentiation of ES cells into specific cell types such as neurons.

Medical Applications of Stem Cells (Lecture 30)
In this lecture we will discuss the potential for stem cells in medicine both as an experimental and potentially therapeutic resource.

Learning Objectives

- To understand how stem cells are defined.
- To be able to describe techniques for the identification of stem cells in adult tissues, and to understand how these are related to the particular properties of stem cells.
- To be familiar with a range of adult stem cell types and the niches that they normally occupy in particular tissues.
- To understand what embryonic stem (ES) and induced pluripotent stem cells (iPSCs) are, how they are derived and know their key properties.
- To be familiar with biological mechanisms that regulate the self-renewal of pluripotent stem cells and to understand how PSCs can be made to differentiate into various specific cell types.
- To be familiar with the ways in which stem cells might be used in medicine, and to appreciate the gaps in our knowledge of fundamental stem cell biology that must be filled before this potential can be fully realised.

FACILITATED GROUP DISCUSSIONS

An important unique component of the Medical Biology 1 course is the Facilitated Group Discussions (FGD), attendance at which is a **compulsory** part of the course.

FGDs involve a group of ~20 meeting once a fortnight with a Facilitator, normally a postgraduate research student in biomedical sciences, to present different views on assigned topics.

- You must complete the FGD online sign up that is on Learn by **12 noon on Wednesday 18 January**.

- Please ensure that your chosen group does not clash with your timetable because once you have been allocated a group, you must attend and sign the attendance list at the designated time and place throughout the semester. **Switching groups is not permitted**.

- Groups meet once a fortnight as indicated in the Timetable. The main Group will be randomly sub-divided into smaller teams of 4-5 people (labelled alpha, beta, gamma or delta), which will work together throughout the semester on the relevant topic(s) for discussion.

Bottom line:
Ensure that you **check your timetable carefully** and let the course administrator know if there are any problems with your group allocation by Monday 23 January.

Note: if you miss an FGD it is your responsibility to catch up with what was covered by asking other members of your team, and to submit a report via Learn before the specified deadline. See the instructions about "special circumstances", if relevant.

There are **four facilitated sessions:**

1. To review topic 1 then prepare and submit a report via Learn by a specified deadline
2. To review topic 2 then prepare and submit a report via Learn by a specified deadline (NB deadline after session 3)
3. To discuss formative feedback on report 1 and plan the group oral presentation.
4. To give a team oral presentation on an assigned topic, using PowerPoint. The talk is then placed on the Course Learn Presentations page, under the appropriate topic.

The aims of the Facilitated Group Discussions are:

- To help you to understand aspects of biology relevant to health and disease
- To develop progressively your ability to extract information from various sources for discussion: in particular to assimilate and examine information from research publications
- To develop your ability to deal with issues which may not have clear-cut answers, and to review conflicting views which may sometimes be based on similar evidence; to appreciate that interpretation of findings can vary, and the reasons for this variation
- To develop your skills for balanced small-group discussion, by listening to other students in a small group, voicing your own opinions, and allowing your ideas to be challenged and shaped through argument. The ability to interact with others in a team setting is a vital transferable skill which employers both expect and require.
- To develop your ability to condense information into a short report summarising your views on a topic, acknowledging differing views that emerged during the discussion within your group, and appreciating that there may not currently be a "correct" answer to certain questions. Indicate what research is required to provide definitive evidence.
- To work as a team to review a topic, prepare and deliver a concise report which communicates information to colleagues with the aid of a PowerPoint presentation, and answer questions from the audience.

You will be provided with a Study Pack for each discussion topic, in advance of the Group Discussion meetings, on Learn. The Study Pack will typically contain two or more short research papers or reviews related to that topic, around which the team discussion at the meetings will revolve for ~20 min, followed by Group discussions on the theme.

Following each meeting, you will individually prepare and submit your own concise report **(recommended maximum of 1000 words, excluding the final references list)** on the substance of the topic and the group discussions (see Writing a Report).

- The Facilitator will mark the two written assignments and return comments to you electronically using a standard feedback form.
- The oral presentation is marked by your facilitator and a mark is assigned to the group as a whole. You will need to arrange your talk with fellow members of your team.
- No report is required for the oral presentation, but each team's presentation must be placed on the FGD page in Learn by the deadline specified for your group**.**

Each Discussion Topic Report must be submitted electronically before the relevant deadline to the MB1 course Learn site ONLY. Shortly after the reports have been marked, you will receive objective feedback from the Facilitator via Learn. Please note that you must submit the report with a front page which we will provide in the Medical Biology section of Learn, filed in the FGD folder under "FGD Front Page".
The identification information required to be filled in on the cover page is not included in the word limit.

Group Facilitation

It is important to understand that the Facilitator who will be present during your FGD meeting will NOT lead the discussion or give a mini lecture on the topic. Instead s/he will as act as an interested observer who can steer the session, if that is needed. S/he will encourage you to express your views and your understanding of the paper(s) that have been set for that topic and promote discussion amongst your group of the evidence and basic science related to that topic. Often the topics we set will not have clear-cut, "correct" answers. Instead, your task will be to evaluate the evidence and consider arguments in favour of or against a particular view, and write a concise report summarising and justifying your own view of the topic in the light of the Group Discussion. As part of this exercise, we will be looking for evidence that, where there are differing views, you have taken alternative views into account, and how you may have modified your own thinking about the topic.

Please appreciate and be sensitive to the views of different cultures and faiths when debating issues.

GROUP DISCUSSION MEETINGS

The **three** facilitated sessions are progressive group discussions on:

1) Should triparental embryos be used to treat families affected by mitochondrial disease?
2) Should mosquitoes be eliminated?

3) In this class, you will discuss the feedback on your first FGD report AND start to plan your group oral presentations

Research papers or a relevant web link have been selected for each Discussion Group topic and can be found on the FGD section of Learn. Read and understand these prior to the meeting with the members of your team. Each person should review the topic in the week before the FGD and **come to the Discussion Meeting ready to discuss their views and thoughts on the topic with others in their designated team (sub-group) during the first 20 minutes of the session**. Each member of a team is required to review the scientific evidence and contribute to the discussion. Thereafter discussion of the topic will be **widened to include all teams in the Group.**

There is no need during the FGD session to reiterate or summarise the few papers/web links that were provided for the topic – you should assume everyone has read these. However**, for your written report on the topic, you should briefly summarize the material** you were required to review **and also concisely report on your group's discussion and conclusions.**

If there are any terms or concepts associated with any of the topics that you have not met before, find out about them by using textbooks or web sites such as Wikipedia (which should always be used with caution).

Keep notes as you go along, including references (of your reading, relevant lectures and team and group discussions) for your report.

TIP: YOUR personal account of the group's discussion and conclusions is an element in the assessment of each report's discussion section.

WRITING THE DISCUSSION GROUP REPORT

- The recommended maximum length of the report is **1000 words, excluding the reference list** (sometimes called the bibliography).
- Authors' names that you cite in support of particular scientific statements in the introduction and discussion of your report must be counted. You should exclude from the total word count the **reference section**, i.e. the alphabetically-ordered list of authors, year of publication, title of article, journal name, volume and page numbers which you should provide at the end of your report – see below.
- Use a word processor, and ensure that you use a **minimum print size of 11**, preferably in **Times New Roman font.**
- You must submit your report via Learn using the **specified format (Word.doc)** before the stipulated deadline (see timetable). It will then be marked by your Facilitator and also automatically checked using electronic plagiarism detection software.
- It is your responsibility to ensure that the report has been accepted by Learn. A common reason for failure to accept is use of a non-acceptable type of computer file.
- **Reports submitted after the deadline WILL be penalised. See Appendix I for details of penalties and for what to do if you have Special Circumstances.**

The assessors will look for a good structure, relevance, and factual accuracy. Clear, concise writing will be rewarded, as will logical argument, **presenting various points of view that were raised during FGDs**, as well as your own viewpoint.

The marking scheme is as follows:

- 15% for introduction, brief description of what you are covering in the report
- 30% for a brief review of the papers you were given
- 30% for your account of the discussion that took place, showing how evidence gleaned from the reading material enabled you to reach an informed opinion on the topic.
- 15% for your personal conclusion
- 10% for proper referencing and citing relevant literature or accredited web sites

Penalties will be applied at the standard rate for late submission (see Appendix I).

It will not be possible to provide rapid feedback on late reports – they will be assessed when the Facilitator can make time for this unscheduled additional work.

VERY IMPORTANT: No submission = 0%

Plan a structure, with a clear conclusion expressing your **OWN** view based on what you have read and heard. Concentrate on the relevant arguments, and back up your statements with citation of the relevant paper(s). State whether or not the discussion changed your, or other team members' opinions; or whether you regard the evidence as insufficient – and indicate what further evidence you require.

REFERENCES – IMPORTANT

1. For referencing these three reports, and also for your project report, you are **required to use** the **Harvard**, rather than the Vancouver (numbered) **convention**. Failure to do this properly will result in a score of 0% for the references element of the assessment.

2. In the Harvard referencing system (also known as author-date system or parenthetical referencing) a brief citation to a source is given in parentheses within the text of an article, and full citations are collected in alphabetical order under a "References" section at the end. The citation in the text is placed in parentheses after the sentence or part thereof, followed by the year of publication, as in (Smith 2005). Normally this type of report need not contain more than ~10 references.

3. Then in the References section, a full citation is given: Smith, John. (2005). *Playing nicely together*. St. Petersburg, FL (USA): Wikimedia Foundation. For more detail about referencing systems and more general guidance on how to write a report, see:

   http://www.biology.ed.ac.uk/research/groups/jdeacon/writing/essays.htm

4. Referencing web sites is still evolving**,** but the following guideline is suggested. Note that, in the text, the reference to an author's publication/web page would appear as (Deacon, 1999) – see *use correct format* in the table shown above,). In the reference listing (exclude from word count) this would appear **as:** Deacon J.W. (1999) *The Microbial World* (http://helios.bto.ed.ac.uk/bto/microbes/microbes.htm) [accessed 12 August 2011]

5. If there is no obvious author, you can cite general information relating to a topic and the web site in the text, e.g. obesity adversely affects health (Wikipedia), and list this in the references as: Obesity, Wikipedia http://en.wikipedia.org/wiki/Obesity (accessed 24 July 2011)

The following information is provided to help you prepare your FGD reports

Section	Clarification
Introduction	Explain briefly the aims of the report
Review	Briefly review the scientific papers or web site you were given
Discussion	Present a balanced discussion covering both sides of the argument and backed up by evidence from your reading / references. You should consider the major questions and answers arising from the topic
Conclusion	Present a clear conclusion, fully supported by the facts and arguments covered in your report.
References	Provide proper references to relevant literature or accredited websites

The following guidelines are provided to assist you in good scientific writing. Please take them into account when preparing your report as these elements will be rewarded by the assessors

Relevance: you've stuck to the subject of the topic.
Structure: logical flow of report.
Clarity: concise language, good style, correct spelling and grammar, summary diagram if appropriate.
Accuracy: you've used all biological terms/concepts correctly.
Interpretation and logical argument: you've selected and explained information appropriately to support your case, based on evidence. Not simply a summary of the papers.
Depth of understanding: your writing demonstrates an appropriate level of comprehension.
Use correct format: you've cited authority in the text to back all statements. You've listed references at the end alphabetically. See guidelines or BTO website: http://www.biology.ed.ac.uk/research/groups/jdeacon/writing/essays.htm
Use of evidence: where appropriate you've distinguished between types of evidence (e.g. experimental, epidemiological) and their strengths and weaknesses. You have commented on uncertainties and limitations of current knowledge on subject. If you think further research is needed you've been specific.
Source of statements: you have made clear which statements or opinions are your own, and which were those from your or other groups. You've addressed points made in the FGD, and have drawn together various points of view.
Conclusion: you've briefly summarised the main points you have established, expressed your viewpoint, and that of others.

GROUP PRESENTATIONS

- The fourth component involves your team discussing a designated topic [see below] and then preparing a PowerPoint presentation, during which **each member of the team is required to contribute to the preparation, be at the presentation and contribute during the talk** and the subsequent audience discussion.
- It is expected that initial planning of the presentation will take place at the 3rd FGD session but that each team will meet independently of the timetabled sessions to finalise their group oral presentations.
- There will be four PowerPoint presentations in each final session (weeks 8 and 9), and these will be marked by the facilitator. You will give your presentations as part of your team which will present the corresponding topic outlined below.
- **One copy of your team's presentation should be uploaded to the Learn presentations site by each sub-group. Designate one of the presenters to upload your PPT file before the deadline, 12 noon on Monday 20 March 2017 (1A-1O) or 12 noon on Monday 27 March 2017(2A-2O).**

Topics for PowerPoint Presentation by teams (subgroups):

Alpha:	Personal genomics: should sequencing individual genomes become a routine part of medical care?
Beta:	Bariatric surgery - the only solution to obesity?
Gamma:	Should e-cigarettes be prescribed to patients on the NHS??
Delta:	Stem cell tourism: a ray of hope for the terminally ill or blatant exploitation of the vulnerable?

Starter references or web links to relevant material can be found on the FGD page in Learn.

GENERAL GUIDANCE

Based on your reading of the references which were provided relating to the specified topic, and using knowledge obtained from your other teaching and reading, discuss the question and prepare a team report.

The report will be presented orally using PowerPoint slides and should briefly:

- Present the background to the topic
- Discuss and critically review the scientific evidence
- Suggest how further studies might be undertaken to enhance knowledge
- Summarize the group's deliberations and conclusions in relation to the question posed.

Each presentation should last for a **maximum of 10 minutes** and **ALL** students in each team **must contribute to the presentation and speak during the talk**. There will then be 2-3 minutes for general discussion, during which members of the audience are expected to participate.

Assessment: The score achieved by the team will apply to each member. Individuals who fail to contribute either to the team's preparation or to the presentation without good reason (as specified in a Special Circumstances form from the Personal Tutor which should be sent to the Course Administrator) will score 0%.

Ensure that your team brings the PowerPoint slides on a USB stick, in a format that is compatible with a standard PC. Load all the talks onto the PC desktop before the START of the session.

Note:

- All the material covered during the Group Presentations is examinable.
- Each presentation will be chaired by the Group Facilitator

DO's and DON'Ts of Presentations

Although you have probably had instruction in making presentations, here are a few reminders of the Do's and Don'ts. A presentation should tell a story. When designing overheads, think about how they link together. When planning a talk, bear in mind the old adage:
tell them what you are going to talk about *(an introduction that sets the scene)*
tell them (*work through the body of information)*
tell them what you have talked about (*have a conclusion that pulls it together)*

This is particularly important when a talk is being given by a group of people: make sure you have an introductory slide and a slide that summarises what everybody in the group has said. It has been said that if you drop dead of a heart attack during the talk, the audience should be able to continue through your slides and still know what you were going to say.

Preparation of each PowerPoint slide:

Don't put large tracts of text on a slide, summarise points into headings.

Do use well-constructed, labelled diagrams rather than screeds of text. Remember: diagrams in other people's text may need modifying to meet your requirements. If necessary, remove details that you are not going to refer to, and add extra labels as required.

Do use graphs of scientific data to back up theories. These can often be constructed from data in tables of other people's papers. Always give the sources if showing data from papers (otherwise you are committing plagiarism).

Do use large typeface throughout. When preparing slides or overheads on computer, you should be able to read the text easily when sitting 6 feet away from the screen. When projected, it will then be readable at the back of a lecture theatre.

Use colours carefully. Remember that some colours (such as yellow or orange on a white background) do not project well. Also, remember some people are colour-blind and cannot distinguish between red and green (more rarely yellow and blue). Lines in these colours which cross over can be misleading.

Delivering the talk:

Don't read the slide verbatim – paraphrase the content and expand and describe bullet points or section headings.

Do use a pointer (wooden stick, laser dot or computer pointer) throughout to draw your audience's attention to the part of the overhead you are describing.

Don't read from notes. If your slides are designed carefully, then all the points you want to make should be on the slide. Annotate the slides carefully to act as aide-memoirs rather than having notes.

PRACTICAL PROJECT

In East/West Teaching Labs
BMTO, Medical School, Teviot Place

Biomedical measurements in assessing health

A practical project has been devised to enable you to gain experience of collecting, analyzing and reporting the outcome of non-invasive measurements involving you and fellow undergraduates in the class. The practical is constrained by the limited time available and class size, but the intention is to make it interesting and stimulating.

You will prepare a report, based on the results from the practical, in relation to measurements of some vital signs. The vital signs are blood pressure, heart rate (pulse), respiration (breathing) and temperature. You will measure peak expiratory flow instead of respiratory rate, and we shall not measure body temperature, but you will measure the other vital signs, together with some additional biological variables which can be determined non-invasively.

Aims:

1. Appreciate the basis of measurements in biomedical science and their value in understanding, preventing, diagnosing and treating disorders.
2. Appreciate sources of variability ("noise") associated with measurements, including: biological variability, accuracy and consistency of readings from instruments, errors in recording, calculating, processing and interpreting data.
3. Learn how to use computers to record, sort, graph and analyze data statistically using computer software such as Minitab and Excel.
4. Establish the distribution for some common physiological parameters that can be measured non-invasively. Determine whether your personal values and those of the overall cohort are similar to values published for various other populations in the scientific literature. Gain understanding of how potential disorders can be identified on the basis of "abnormal" test results, i.e. values that are at one or other end of the "normal distribution" or population curve.
5. Develop scientific curiosity: explore the meanings of the biological and statistical significance of results by analyzing data for differences between sub-groups within the sample (e.g. male vs. female) by using simple parametric statistics (e.g. t test) and non-parametric statistics (Mann-Whitney test) to compare values from different cohorts.
6. Search for and examine published scientific evidence concerning whether the measured variables have value in detecting or predicting disease.
7. Develop observational, IT, communication and time management skills by collating information and preparing a concise report of your project work for delivery by a specified deadline. Project work is done as an **individual exercise** using pooled communal data, in contrast to the **group work** involved in the Discussion groups.

Note: Attendance is registered via entry of your matriculation numbers on the results spreadsheet. Matriculation numbers do not appear on the final class data set so that the results are anonymous. It is appreciated that some students may not wish to participate in the practical or only participate as an observer (ie not provide measurements). Please contact the course organiser/administrator if you do not wish to participate in the practical or, speak with the person in charge of the practical class to register your attendance if you only want to observe.

PROTOCOL FOR PRACTICAL WORK

Bring with you:

1. Lab coats are not required, but bring a pen and the following **pre-measured variables** with you to the correct timetabled lab session.

- Your waist circumference – (in cm as an integer); see details, below
- Your hip circumference – (in cm, as an integer); see details, below

What you will do:

1. Collect a blank record sheet (see sample on page 30), and fill in the fields for which you already have values.
2. Work in pairs and perform measurements, as directed by staff in the laboratory:
    - Height (m) with shoes
    - Weight (kg) clothed and with shoes on
    - Grip strength – dominant and non-dominant hand (kg)
    - Peak expiratory flow (PEF)
    - Blood pressure (systolic and diastolic; mm Hg)
    - Heart rate (beats per minute)
3. Record variables on your personal results sheet; compare your values with those from nomograms provided.
4. When you have completed your measurements, carefully enter all the relevant values onto the master spreadsheet on a PC in the laboratory.

Afterwards:

5. Start thinking and working on your report, but note that the final results table will not be available on Learn until the **whole class has completed the practical**. Final data file will be put on Learn Practical site, probably **during weeks 6-7**.
6. See below for details concerning the project report
7. Note that the deadline for submitting your project report via Learn is 12.00 on **Monday 3 April 2017**
8. Prepare your personal Project Report in accord with the guidelines and submit it via the Learn Project site before the deadline.

MEDICAL BIOLOGY 1: PRACTICAL PROJECT

MEASUREMENTS TO BRING WITH YOU TO THE PRACTICAL CLASS

Measurements are anonymous on the data spreadsheet

1. Your **waist** and **hip measurement** in **cm**, 0.5 cm increment (34" ~ 86.5; 35" ~ 89.0 cm) [inches x 2.54 = cm; 1 inch ~ 2.5 cm]

- To make these measurements, use a non-stretchable tape. Make sure it is level (parallel to the floor) around the body, tightened but not so much as to depress the skin. The hips are measured at the widest part of the hip bones. The waist is measured just about the crest of the upper hip bones. If you don't have a tape measure, mark the circumferences on a piece of string and bring it with you for measurement in the lab.

Notes:

1. Waist-to-Hip Ratio or Waist-Hip Ratio (WHpR) is the ratio of the circumference of the waist and the circumference of the hips. In other words, WHpR refers to proportions by which fat is distributed around the torso.
The concept and significance of WHpR was first theorized by Evolutionary Psychologist, Dr. Devendra Singh at the University of Texas at Austin in 1993. (Singh,D. Adaptive significance of waist-to-hip ratio and female physical attractiveness, Journal of Personality and Social Psychology 65 (1993), pp. 293-307).

A WHpR of 0.7 for women and 0.9 for men has been shown to strongly correlate with general health and fertility. For example women within the 0.7 range have optimal levels of estrogen, are less susceptible to major diseases such as diabetes, cardiovascular disorders and risk for ovarian cancers. Men with WHpRs around 0.9, similarly, have been shown to be more healthy and fertile with a lower incidence of prostate and testicular cancers.
http://www.answers.com/waist+hip+ratio?gwp=11&ver=2.4.0.651&method=3#Wikipedia_d_ans Last accessed 22.03.10

2. Waist-to-Height Ratio (WHtR) is the ratio of the circumference of the waist and height. In other words, WHtR is the person's waist circumference divided by the person's height. Similar to WHpR this is a measure of central obesity and may be a better predictor of mortality than BMI (Ashwell M, Mayhew L, Richardson J, Rickayzen B (2014) Waist-to-height ratio is more predictive of years of life lost than body mass index. PLoS One 9:e103483.)

Medical Biology 1 Practical Project: Record Sheet

Work in pairs. **Record variables in the unshaded boxes**. Integer = nearest whole number.

Matriculation number is required for attendance record; it will not appear on the spreadsheet

				Data for spreadsheet:	
Matriculation No.					
Sex: male or female or other or 'prefer not say'	**M or F or O or P**				
Height (including normal shoes)	in metres (to 2 decimal places) Note: computer subtracts 2.5cm for avg shoes				
Weight (including normal clothing & footwear)	in kg (to 1 decimal place) Note: computer subtracts 3.0 kg for avg clothes				
Waist measurement	in cm (integer)				
Hip measurement	in cm (integer)				
Grip strength: Dominant hand	in kg (integer) *Take 3 readings* **Use the highest**				
Grip strength: Non-dominant hand	in kg (integer) *Take 3 readings* **Use the highest**				
Dominant hand	Left, Right, or Ambidextrous				
Peak Expiratory Flow	in litres per minute (integer) *Take 3 readings* **Use the highest**				
Blood Pressure		**Systolic**	**Diastolic**	**Systolic**	**Diastolic**
	in mm Hg (integer) *Take 3 readings* **Use the last**				
Heart Rate	in beats per min (integer) *Take 3 readings* **Use the last**				

- Compare your values for BMI, Peak expiratory flow and blood pressure with those nomograms (available in the laboratory and on Learn/practical)
- An adjustment is automatically applied by the spreadsheet to correct height & weight for shoes and clothing

- **Transfer data carefully from final column to the master spreadsheet <u>before you leave the lab</u>**

PROJECT REPORT

TIP: see Learn/Project report/Minitab for guidance and examples of how to use Minitab for calculating, graphing and statistical analysis of pooled class results

A. Prepare a **concise report** based on the data obtained from the **whole class** during the practical sessions which will be provided in a Minitab file that will be uploaded to the MB1 practical Learn page, probably during weeks 6-7.

B. Use the following headings for your Project Report:
Title
Introduction
Methods
Results
Discussion
Conclusion
References

C. **Limits**: recommended maximum **2500 words excluding references,** no smaller than font size 11 and five figures; the cover sheet with your id is NOT included in the word limit. A figure may contain several graphs: a, b, c, d. All figure legends must be included in the word count, and figures must be legible. Use Minitab to **graph data** for presentation and for **statistical analysis** of the results **(see separate guide to using Minitab and concise information about statistical tests, in Learn under Project report/Minitab guide).** Answer the specific questions in section E using the data in the Minitab Master file showing the measurement from all 12 practical sessions. Put graphical summaries of the data in your Results section, **and debate their scientific meaning in relation to published evidence by citing a few key literature references**, in your Discussion section.

D. When answering the following questions, **"limits"** means the maximum (highest value; upper limit; top) and the minimum (lowest value; lower limit; bottom) value recorded in a data set containing measurements from n individuals; **range** in statistical terms is the difference between the highest and lowest value in a data set, but sometimes range is loosely used instead of limit. When asked if a set of values in one group differ from those in another, use an appropriate statistical test to compare median or mean values (see guidance on basic statistics in the later section on Minitab guidance in Learn). You are required to provide in the Results section of your report the key information, i.e. the median value, limits, n, and if relevant the value of specified statistical tests, together with a statement relating to probability that the difference between groups is statistically significant (e.g. Males are heavier than females: $P<0.05$, t-test; also $P<0.05$ Mann-Whitney test). Do not simply copy and paste the entire blurb in the computer printout generated by the statistical test. A fault in Minitab means that when displaying probability values it cuts out at 3 or 4 decimal places ($P=0.000$) rather than showing the full number (e.g. $P=0.0004$). However, a P value of 0.000 is clearly less than 0.05, so it is statistically significant and should be reported as $P<0.05$ (+ name of test). Further information regarding the statistical tests to be performed in order to determine whether inter-group differences show statistical significance are given in Minitab guidance section 2 in Learn

E. QUESTIONS TO BE ANSWERED

1) What are the **height** limits and the median value for a) females and b) males, and do females differ significantly from males? **Note:** no graph is required for 1)
2) What are the **body mass** (weight) limits and the median value for a) the females and b) the males in the pooled class results and do the females differ significantly from males (with respect to body mass)?
3) What are the limits and the median value of **BMI** for a) females and b) males, and do females differ significantly from males?
4) What are the limits and median value of **WHpR** for a) females and b) males, and do females differ significantly from males?
5) What are the limits and median value of **WHtR** for a) females and b) males, and do females differ significantly from males?
   Note: put 2-5 as panels within a single figure, e.g. 1a, 1b, 1c, 1d
6) What are the limits and median value of **grip strength** for the **dominant hand** for a) females and b) males, and do females differ significantly from males?? If no hand dominates, i.e. ambidextrous, use either value.
7) What are the limits and median value of **systolic BP** for a) females and b) males, and do females differ significantly from males?
8) What are the limits and median value of **diastolic BP** in the class for a) females and b) males, and do females differ significantly from males?
9) What are the limits and median values of **basal (resting) heart rate** value for a) females and b) males, and do females differ significantly from males?
   Note: put 6-9 as panels within a single figure
10) What are the limits and median value of **PEF** for a) females and b) males, and do females differ significantly from males?
    Note: no graph is required for 10)

TIP: For an example of how to present Minitab results in your report concisely using a table, see the end of Minitab guidance in Learn/practical project report.

- Consider where your personal values for the different variables measured lie in relation to those of the cohort, **but in your report only discuss the pooled data** obtained from the cohort (whole class, unless male vs. female is specified). **Your own results are confidential, and are not to feature in the report.** Also, do not be unduly alarmed if your personal values measured during this single one-off laboratory session are odd. This applies particularly to the measurement of cardiovascular variables, which are very prone to operator error and/or to "white coat syndrome" – search that expression in Answers.com for an explanation.

- **Ensure that you discuss the pooled results (in the Discussion section)** which you are presenting in terms of: indirect versus direct (invasive) measurements; biological variability; homogeneity of the population (sex, age, ethnicity, diet, lifestyle); errors in making measurements; normal distribution of values; established normal limits as reported in the literature; use and value of non-invasive biomedical measurements in determining health and diagnosing disease; parametric and non-parametric statistical analysis of data; the meaning of significant correlations between variables and the biological significance; biological implications of statistically significant differences between sets of values from a population. Consider the value of variables measured under basal conditions, as opposed to during exercise, and relate them to contemporary issues relating to healthy living, as covered in relevant lecture material (e.g. obesity, asthma, physical and psychological dependence, stress, disease). **Highlight any features in the results** which you found particularly surprising or interesting, or further studies that you would like to undertake.

- Information has been provided in the FGD section about citing supporting references using the Harvard system.

- Submit your report electronically, including the cover page with matriculation number, via Learn before the designated deadline. Your report will be scanned by a plagiarism detection programme. See above for details on submitting assignments via Learn.

- **Penalties will be applied for late submission. See Appendix I for information on Special Circumstances.**

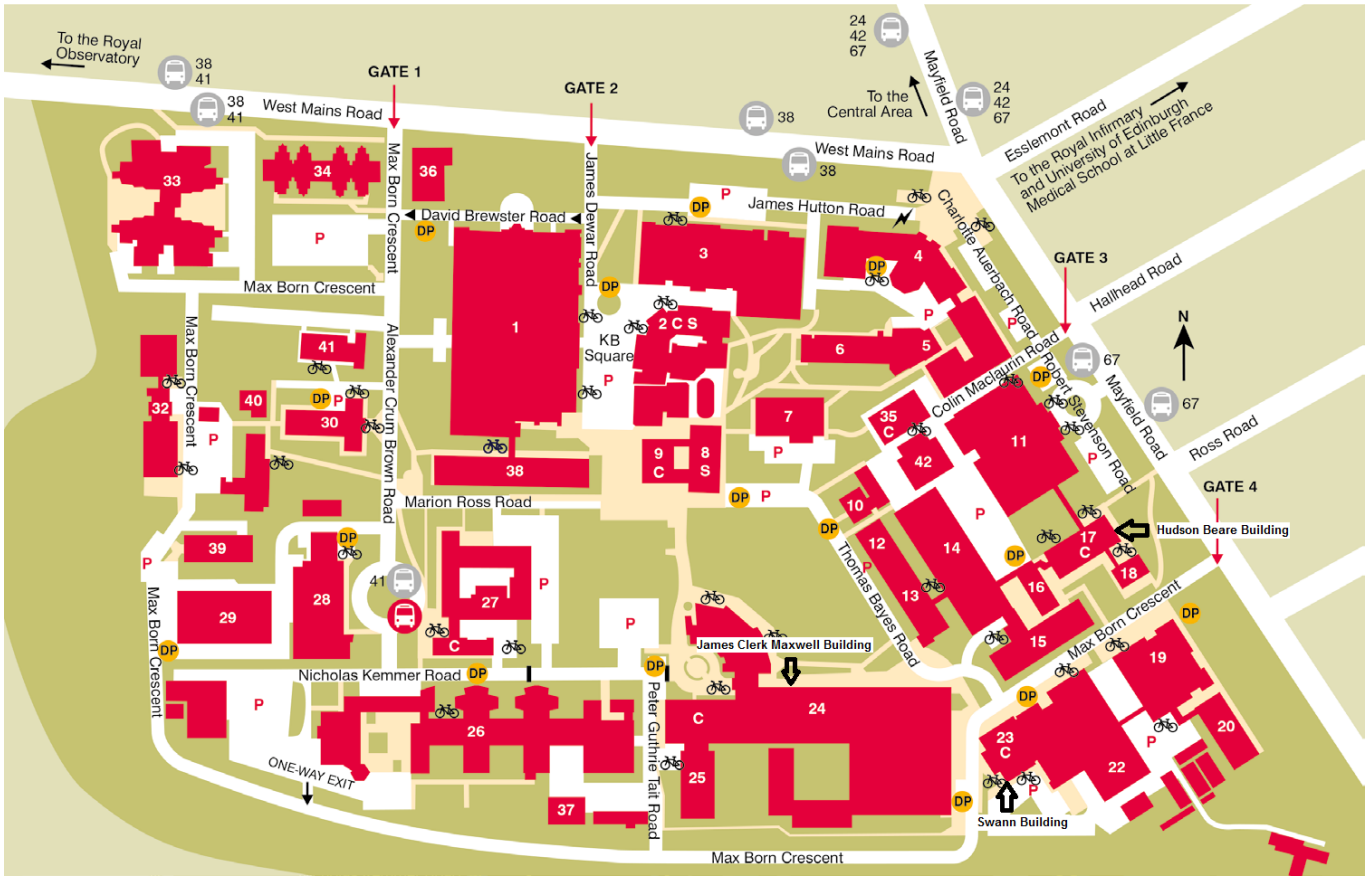
APPENDICES

APPENDIX I - Links to important information contained on the BMTO website:

Information for students on a Tier 4 visa	http://www.ed.ac.uk/biomedical-sciences/bmto/policies-and-guidance/information-for-students-on-a-tier-4-visa
Student feedback	http://www.ed.ac.uk/biomedical-sciences/bmto/get-in-touch
Late submission of work	http://www.ed.ac.uk/biomedical-sciences/bmto/policies-and-guidance/late-courework-submission
Special Circumstances	http://www.ed.ac.uk/biomedical-sciences/bmto/wellbeing-and-study-support/special-circumstances
Plagiarism	http://www.ed.ac.uk/biomedical-sciences/bmto/policies-and-guidance/plagiarism
Academic Misconduct	http://www.ed.ac.uk/biomedical-sciences/bmto/policies-and-guidance/academic-misconduct
Complaints	http://www.ed.ac.uk/biomedical-sciences/bmto/get-in-touch/queries-or-concerns
Academic appeals	http://www.ed.ac.uk/biomedical-sciences/bmto/policies-and-guidance/academic-appeals

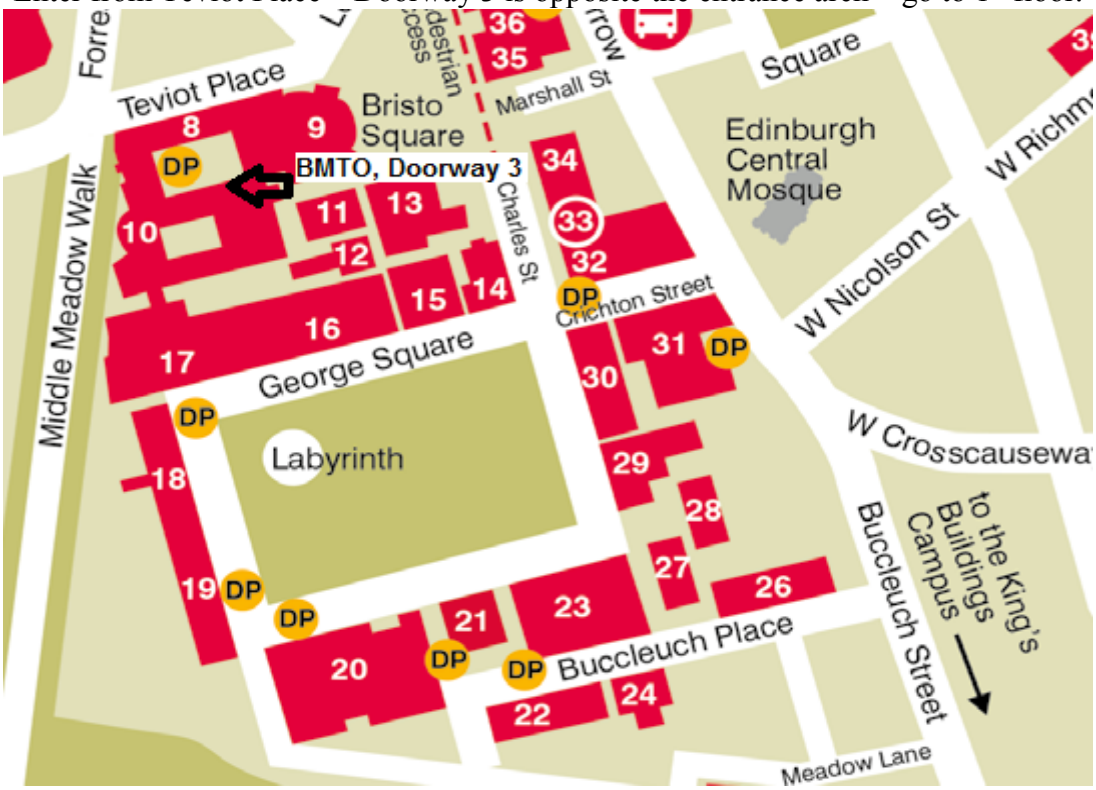
APPENDIX II – Maps (See also http://www.ed.ac.uk/files/atoms/files/campus-maps.pdf)

Kings Buildings



George Square

The Course Administrator can be found in the BMTO reception which is located in the Medical School Enter from Teviot Place – Doorway 3 is opposite the entrance arch – go to 1st floor.



APPENDIX III –Information concerning safety

SAFETY NOTES FOR STUDENTS WORKING IN TEACHING LABORATORIES

ALL ACCIDENTS OR NEAR MISSES MUST BE REPORTED TO THE TECHNICAL STAFF IMMEDIATELY

IF THE FIRE ALARM GOES OFF FOLLOW THE INSTRUCTIONS OF THE FIRE STEWARDS

The Health and Safety at Work Act has been in operation since 1975. The Act places an obligation on workers to undertake their work in a safe and responsible manner with due regard to themselves, their colleagues, the general population and the environment: a duty of care. The Biology Teaching Organisation endeavours to ensure that all practical laboratory work complies with this Act and with safe working practice. It is the duty of all the workers in a laboratory to try to avoid injury to themselves or to others, and responsibility therefore rests with you to conduct laboratory work in a safe and sensible manner. A "Risk Assessment Form" and a "COSHH Form" have been completed for this course, giving details of the risks and hazardous chemicals that are in use. The Course Organiser and class technician have copies, which you have the right to consult. A copy will be displayed on a noticeboard in the laboratory.

Remember: if you are in any doubt about the safety aspect of practical work you should consult your demonstrator before proceeding with the experiment.

General

- Smoking, eating and drinking are forbidden in laboratories
- All pipetting by mouth is forbidden.
- Laboratory coats must be worn in teaching laboratories.
- Long hair should be tied back.
- Items of Personal Protective Equipment (PPE) provided for particular procedures must be used when indicated by the experimental protocol or by the Demonstrator.
- Label all solutions carefully.
- Take care using pipettes and glassware. The most common laboratory accident is cut hands from damaged glassware.
- Wash hands before leaving the laboratory.
- **All mobile phones must be switched off when entering a laboratory.**

POSSIBLE HAZARDS THAT MAY BE ENCOUNTERED IN TEACHING LABORATORIES AT KINGS BUILDINGS

1. *Toxic and corrosive chemicals*: All handling of toxic or corrosive chemicals, such as cyanide, caustic soda, strong mineral acids, and similar solutions, should be conducted with great care. When handling toxic or corrosive chemicals wear safety spectacles. Pipetting toxic or corrosive chemicals by mouth is forbidden. Such solutions should be quantitatively dispensed using the specifically designed automatic dispensers available in the laboratory. Report a spill immediately to a demonstrator or member of staff.

2. *Flammable solvents*: When handling such solvents, safety spectacles must be used. The risk of fire in a laboratory must be considered at all times. When using flammable solvents, such as alcohol, ether, acetone, and other organic flammable liquids, great care must be taken. In particular electrical apparatus, such as centrifuges (which may spark), must be removed from the bench and switched off.

3. *Mechanical apparatus*: When using bench centrifuges, care must be taken to ensure that the centrifuge tubes are properly balanced. Check that the rubber cushions are in the tube holders. Centrifuges to be loaded under the supervision of a demonstrator.

4. *Bunsen Burners:* Switch off bunsen burners when they are not being used. Never leave a bunsen burner on a blue flame (invisible).

5. *Microbial Material:* When using liquid cultures use good techniques to avoid splashes when diluting and dispensing cultures. Never smell a microbial culture.

6. *Electrical apparatus*: No adjustments must be made to electrical apparatus by undergraduate students. It is forbidden to disconnect plugs from apparatus, reconnect plugs, or replace fuses. All electrical equipment in the laboratories has been checked by qualified electrical technicians. If any piece of electrical apparatus is defective, or appears to be defective, the apparatus must be not be used until it has been checked by such qualified electricians. The danger of aqueous solutions near electrical equipment is always present in laboratories. In using electrical equipment, keep the laboratory bench as dry as possible. Particular attention should be paid to the care required in the use of high voltage electrophoresis equipment. **The**

use of high voltage electrophoresis equipment is restricted to undergraduates performing experiments under the direct supervision of a member of staff.

7. *Biological hazards*: All samples of body fluids used in the laboratory must be regarded as major biological hazards. Body fluid samples must be handled wearing disposable gloves. When body fluids are used, automatic pipettes must be employed. All apparatus, pH papers, Multistix, etc. used for experiments involving body fluids must be placed in the autoclave bags provided at disposal points.

8. *Animal tissues*: All animal tissues employed in laboratory experiments must be treated with care. It should be noted that material of biological origin can present an immunological hazard. You must wear gloves when handling animal material.

9. *Microscope Usage:* Some microscopes used in laboratory practicals are stored in cupboards under the benches. Care should be taken when lifting the instruments to and from the cupboards to prevent possible injury to the lifter and damage to the instrument.

10. *Radioactive isotopes*: The use of radioactive isotopes in biochemical laboratories is strictly controlled and such experiments can only be conducted under the direct supervision of a member of staff. Strict adherence of students to the experimental protocol in all experiments involving radioactive isotopes is essential.

    The Code of Practice for Radioactive Isotopes requires that you:

    - Always wear a lab coat and gloves when working with radioactive materials.
    - Always work in a tray or at a bench covered with "Benchkote".
    - Only pipette radioactive solutions with a safety pipette.
    - Place all waste and contaminated apparatus in the designated vessels.
    - Report any spillage to a demonstrator.
    - Immediately wash off spills or splashes on your hands, face or clothes, preferably scrubbing with soap and water.
    - Do not touch other areas or apparatus with contaminated gloves.
    - Wash your hands before leaving the laboratory.

11 *Laboratory cleanliness*: It is essential that you learn laboratory cleanliness early in your career. You must observe the following procedures:

- Clean up immediately all spillages of liquids and chemicals, especially onto any instrument or piece of equipment.
- Don't leave pipettes standing in open reagent bottles.
- Report any accidental contamination of automatic pipettes and Gilson pipettes to the technical staff to ensure the barrel is cleaned properly after use.
- Replace bottle stoppers as soon as you have used the reagent.
- Weigh out chemicals in suitable glass or plastic containers. Take the container off the balance before adding chemicals to it or removing them from it. There must be no spillages onto balances.
- Check centrifuge rotors for leakage from tubes and clean them if necessary. Only use organic solvents in plastic centrifuge tubes after you have consulted the technical staff.
- Wipe bench surfaces clean and arrange bottles and equipment tidily. Place biological materials in the special bins.
- Clearly label any materials which are to be kept until a following practical class with the date, your name(s), the nature of the contents, and any other relevant information of value to the technical staff.
- Label columns containing chromatographic materials (ion exchange, molecular sieve, etc.) with the contents and equilibrating buffer.
- Dispose of cuvettes in containers provided. You must not leave them, full of liquid, in the spectrophotometers.
- Place used slides and pipettes in labelled waste containers.

The Department's Disability Policy

The Teaching Laboratories have procedures for looking after disabled individuals when, for example, the building has to be evacuated in an emergency. If you are disabled (for example, in a wheel chair or hard-of-hearing), you should get in touch with Michael Kerr, BMTO; e-mail: M.J.Kerr@ed.ac.uk without delay who will devise a Personal Evacuation Plan tailored to the individuals need. He must also know if you become disabled during the course: for example, by breaking your leg in a sporting accident.

APPENDIX IV - Links to University Support Services

Study Support	www.ed.ac.uk/staff-students/students/academic-life/study-support
My profile	www.ed.ac.uk/staff-students/students/academic-life/my-profile
Exams and timetables	www.ed.ac.uk/staff-students/students/academic-life/exams-and-timetables
Technology and libraries	www.ed.ac.uk/staff-students/students/academic-life/technology-libraries
International students	www.ed.ac.uk/staff-students/students/living-in-edinburgh/international
Student Counselling Service	www.ed.ac.uk/staff-students/students/health/counselling
Disability support	www.ed.ac.uk/staff-students/students/academic-life/disability-support
The Chaplaincy	www.ed.ac.uk/staff-students/students/health/chaplaincy
Sport and exercise	www.ed.ac.uk/staff-students/students/health/sport-and-exercise
Health services	www.ed.ac.uk/staff-students/students/health/health-services
Careers and opportunities	www.ed.ac.uk/staff-students/students/careers
Money, fees and finance	www.ed.ac.uk/staff-students/students/finance
Your wellbeing	www.ed.ac.uk/staff-students/students/health/wellbeing
Things not going well?	www.ed.ac.uk/staff-students/students/health/things-not-going-well
Students' Association– Advice Place	www.eusa.ed.ac.uk/adviceplace/
Link to A to Z of University Student Services	www.ed.ac.uk/staff-students/students/student-services

Other useful information:

Dignity and Respect Policy	http://www.ed.ac.uk/equality-diversity/help-advice/dignityrespect
Taught Assessment Regulations	http://www.ed.ac.uk/files/atoms/files/taughtassessmentregulations.pdf
Extended Common Marking Scheme	http://www.ed.ac.uk/student-administration/exams/regulations/common-marking-scheme