WELCOME TO BIOCHEMISTRY 1008 (BIOC1008)!

Biochemistry 1008: General Biochemistry (BIOC1008), aims to introduce some of the concepts and techniques that are important in the study of the biological sciences.

It is assessed by a final unseen two-hour examination, three in course 60 minute tests relating to the subject areas covered in the course and by the tutorial exercises.

Surviving the course

BIOC1008 has various rules on matters such as attendance and assessment deadlines. These are given in this Course Book. It is up to you to read these sections of the Course Book. Ignorance of the rules is not an acceptable excuse and you may lose marks or even fail the course through breaking the rules.

Sources of Information on BIOC1008

(1) The Course Book
The Course Book contains all of the basic information on the course and materials provided by the lecturers on the course.

(2) Lectures
Lectures present the material you are expected to know. It is important that you consolidate your knowledge from the lectures with further reading from any of the textbooks (or suitable equivalents) listed on pages 9 and 10. Announcements may be made at the start of lectures to remind you of "housekeeping" details or of any changes to arrangements.

(3) Moodle
Announcements relating to BIOC1008 will always be posted on Moodle. Moodle is also where you will carry out tutorial exercises. The in course tests are Moodle-based and the site provides a forum for contacting the course organizers and lecturers if you have questions. Additional lecture materials, quizzes/self help sections and links to further interesting information are also available on this site. IT IS ESSENTIAL THAT YOU LOG ONTO MOODLE IMMEDIATELY YOU START THE COURSE. You will find Moodle incredibly useful and proper use of the facility will make your life much easier.

To log into Moodle (http://www.ucl.ac.uk/moodle), type in your UCL user name and password. These will be given to you in the first week of term. We will demonstrate Moodle in the introductory session and give you the password to enroll yourself on the BIOC1008 Moodle course. You must be enrolled in order to do the assessments required for the course.

(4) Email
We use email (always to your UCL email address) to send out reminders and notices. Please get into the habit of checking your email regularly.
COURSE BOOK CONTENTS

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LOST BOOKS

This copy of the Course materials is provided free of charge. Please do not lose it!

Replacement copies will cost £5 and are in limited supply.
BIOCHEM 1008: GENERAL BIOCHEMISTRY

Aims:

To introduce Human Science, Biochemical Engineering and Chemical Engineering students to the ideas and techniques of Cellular and Molecular Biology that are essential for a basic understanding of modern biology. To introduce students to the requirements of university study in the biological sciences and to encourage them to develop skills they will need to succeed in their studies.

Objectives:

By the end of this half course unit from lectures, computer simulations and animations and on-line tutorial exercises/course work students should have:

- Developed at the level of introductory university textbooks, knowledge and understanding of the main aspects of cellular biochemistry namely:
  - Introduction to the cell and its structure and function.
  - The fundamental units of biological structure, amino acids, monosaccharides and nucleotides
  - The structure and function of cellular macromolecules, nucleic acids, proteins and sugars.
  - The process of DNA replication, transcription and translation of genetic information and DNA repair.
  - The central catabolic and anabolic pathways in metabolism.
  - Begun to use web based tools for study.
  - Learned something of the interpretation of experimental results and solved numerical problems.
LECTURE TIMETABLE 2008-2009

Lectures: Mondays 12 noon in Sir Ambrose Fleming Lecture Theatre, Roberts g06
Thursdays 9am in Archaeology Lecture Theatre

Lectures begin 5 minutes past the hour. Please be PUNCTUAL. Lectures should finish at 5 minutes to the hour to allow time to reach your next lessons.

Term 1

1  Mon 29 Sep.  AT-N Introduction to the course, Practicals and webCT
2  Thu 2 Oct.  SD  Chemistry I
3  Mon 6 Oct.  SD  Chemistry II
4  Thu 9 Oct  AT-N Cell Biology
5  Mon 13 Oct  AT-N Cell Biology
6  Thu 16 Oct  AT-N Molecular Biology I
7  Mon 20 Oct  AT-N Molecular Biology II
8  Thu 23 Oct  AT-N Molecular Biology III
9  Mon 27 Oct  AT-N Molecular Biology IV
10 Thu 30 Oct  AT-N Molecular Biology V

11 Mon 3 Nov  EDS Metabolism I
12 Thu 6 Nov  EDS Metabolism II
TEST Fri 7 Nov  Molecular Biology – Open Book in specific cluster

13 Mon 10 Nov  EDS Metabolism III
14 Thu 13 Nov  EDS Metabolism IV
15 Mon 17 Nov  EDS Metabolism V
16 Thu 20 Nov  EDS Metabolism VI
17 Mon 24 Nov  CJT Proteins and Enzymes I
18 Thu 27 Nov  CJT Proteins and Enzymes II
TEST Fri 28 Nov  Metabolism – Invigilated cluster based test

19 Mon 1 Dec  CJT Proteins and Enzymes III
20 Thu 4 Dec  CJT Proteins and Enzymes IV
21 Mon 8 Dec  CJT Proteins and Enzymes V
TEST Fri 12 Dec  Proteins and Enzymes – Invigilated Exam-like sheets
STAFF CONTACT DETAILS

AT-N  Dr Andrea Townsend-Nicholson (Course Organiser)
      Biochemistry and Molecular Biology
      Room 209 (Darwin)  x32237
      a.townsend-nicholson@ucl.ac.uk

SD   Dr Snezana Djordjevic
      Biochemistry and Molecular Biology
      Room 604 (Darwin) x32230
      s.djordjevic@ucl.ac.uk

EDS  Prof. E.D. Saggerson
      Biochemistry and Molecular Biology
      Room 118 (Darwin) x37320
      saggerson@biochem.ucl.ac.uk

CJT  Dr C. J. Taylorson
      Biochemistry and Molecular Biology
      Room 107 (Darwin) x32177
      c.taylorson@ucl.ac.uk

Administration of Biochemistry 1008 is carried out by the Biochemistry Teaching Assistant:
      Dr. Amanda Cain
      Room 110 (Darwin) x31389
      amanda.cain@ucl.ac.uk

Dr. Cain normally works three days a week and can usually be found in the Biochemistry Teaching Development Office on Tuesdays, Wednesdays and Fridays. She will be available between 12 and 2pm on those days. At other times please leave a message by e-mail.
ASSESSMENT IN BIOC1008

Your assessment in Biochemistry 1008 is made up of THREE components: an examination, three in-course tests and the interactive exercises (tutorials). They are weighted as follows:

<table>
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<th>Component</th>
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<tr>
<td>Final Examination</td>
<td>25%</td>
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<tr>
<td>In-course Tests</td>
<td>60%</td>
</tr>
<tr>
<td>Interactive Exercises</td>
<td>15%</td>
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The final examination is two hours long and consists of multiple choice and extended matching set questions.

It covers all of the course including topics covered in tutorial exercises. Most examinations will be held in the period 27th April to 27th May. The examinations timetable will be available in March before the end of the second term. It is not unusual for year 1 examinations to be close together. You might have three or four examinations in the first week. You should start your revision early! The In course tests will help you to revise material throughout the year but you are very strongly advised to attend revision tutorials and prepare a revision timetable.

REFERRALS

The pass mark for BIOC1008 is 40%. If you receive a final mark of between 35 and 39% you will be offered a referral which will give you the chance to raise your mark to 40%. The referral examination will be held during the last two weeks in July. It will consist of a moodle based test followed by a viva voce examination. i.e. an oral examination.

If you obtain a mark of 40% or above in the final examination but your course work mark brings your overall score to between 35% and 39% you will also be allowed a referral examination and the same guidance as above applies.
IN-COURSE TESTS

These tests count for 60% of the total mark for the course.

They will cover all of the material covered in lectures and tutorial exercises. This is in response to student’s requests for more testing throughout the course and will help you to ‘revise as you go along’.

All of the questions will be short answer, multiple choice or extended matching set questions and will be done using Moodle or the sheets that you will be using for the final examination, to give you the opportunity to familiarise yourself with this assessment method.

All invigilated tests will be 60 minutes long.

The tests will be dispersed throughout the year and will be sat in the week following the end of a series of lectures. The tests will take place on Fridays on the dates outlined below. You will be allocated a time and a place to sit the tests and this information will be published on Moodle. The tests are COMPULSORY and if you are ill on the day of the test we may be able to arrange for another date for you to take the test. You must tell us by filling out a self-certificate if you are unable to take a particular test.

The test dates and subject areas are as follows:

- Fri 7 Nov 2008 Molecular Biology Dr Townsend-Nicholson
- Fri 28 Nov 2008 Metabolism Professor Saggerson
- Fri 12 Dec 2008 Proteins and Enzymes Dr Taylorson

We will load some sample questions onto Moodle prior to each test so you can see the style to be used.

Should extra time be required because of dyslexia you must see your Departmental/Programme/Year Tutor who should contact Dr Townsend-Nicholson. This must be done prior to the date of the first test. Note that a report from an educational psychologist is needed in order to receive extra time because of dyslexia.

There will be no referrals for students scoring 35 – 39% in the In-course tests.
**INTERACTIVE EXERCISES**

The tutorials for the course will be completed on-line and will be put up onto Moodle for an assessment period of **ONE WEEK**. The molecular biology and metabolism tutorials consist of several animated and interactive exercises. When you click on the icon for each of these they should load automatically in a separate window. If you do not have the software required to run these animations then you will be directed to a free site where you can download it. When you have completed the exercise, you will see your final score on the computer screen and you will also receive an email with your score. You may do these animations as many times as you like; your highest score for each will be counted. The proteins and enzymes animation does not score, but you must go through the entire animation, which is monitored, to be complete. Once you have worked through the animation you should then answer the questions relating to the same subject.

Each tutorial session is programmed to collect scores for the relevant tutorial week and will remain available for revision purposes. These exercises are meant to be instructive and will include animations and ‘click and follow’ type environments. We hope this will be a fun way to learn.

If for any reason you cannot complete the tutorial work you must contact either Dr Townsend-Nicholson or Dr Cain to explain why. Alternatively you should fill out a self certificate. (see later)

There are **THREE** tutorials in Biochemistry 1008 based around each main series of lectures on the course.

The **TUTORIAL WEEKS** are:

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<td>Tutorial 1</td>
<td>3 - 7 November 2008</td>
<td>Dr Townsend-Nicholson</td>
</tr>
<tr>
<td>Tutorial 2</td>
<td>24 - 28 November 2008</td>
<td>Prof. Saggerson</td>
</tr>
<tr>
<td>Tutorial 3</td>
<td>8 - 12 December 2008</td>
<td>Dr Taylorson</td>
</tr>
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You **MUST** complete all tutorials. See the rules on attendance and course work. It is hoped that these tutorial exercises will encourage use of the internet as a learning environment but the use of textbooks will also help you whilst completing the tasks set.
TEXTBOOKS

Recommended

Many of the figures from the lecture slides have been taken from Molecular Cell Biology, 6th edition, Lodish et al., 2008 (WH Freeman). However, there are many excellent textbooks which contain the key points presented in this course. A short list of other possible textbooks is given below. There are multiple copies in the Library of all books listed here.

Other Textbooks

There are many good textbooks available for Cell and Molecular Biology although none matches the content of Biochemistry 1008 perfectly. The list given below is far from complete.

Textbooks appear in new editions every few years. Older editions are usually perfectly adequate for first year courses such as BIOC1008. Second-hand books are often available at the start of term.

Prices given are approximate.

Some texts are really only suitable for introductory courses such as BIOC1008 while other more advanced texts are suitable for year 2 and even year 3 courses. The more advanced textbooks are more difficult to use as there is far more material than you require.


This is a simpler version of Molecular Biology of the Cell. Biochemistry 1001 students found that the first edition was not satisfactory for all of the course but we have had no comments on the second edition and have not seen a copy yet.


This has been popular with students in earlier editions and covers molecular biology well.


Another good book with an emphasis on the experiments behind the facts. A good reference for essay writing.


This is an excellent, authoritative and well-written textbook which would serve for year 2 and year 3 courses. It has far more detail than is needed in year 1.


Another comprehensive advanced textbook which would serve many year 2 courses. Somewhat over the top for Biochemistry 1001 purposes.

Practical Skills in Biomolecular Sciences, 2nd edition, Reed et al, 2003, Pearson, £26

This book is NOT a laboratory guide for Biochemistry 1001 but it does cover the principles of many of the techniques used in cell and molecular biology and has much useful information on “skills” such as presenting and analyzing data, communicating what you have done, using units, and even study and examination skills. It is well worth a read.
Biochemistry Textbooks

You may wish to refer to a biochemistry textbook when considering parts of BIOC1008 and particularly the section on metabolism. There are many of these and they are generally good. Most are called “Biochemistry”. Here are some popular ones:

Known as “Stryer” this book is very clear on most things and not as detailed as some other texts.

Known as “Lehninger” who wrote the first edition but died in 1986, this is another popular and approachable text.

This is an introductory text and so more accessible than the more advanced texts.

This is a comprehensive and advanced text book that is probably too advanced for most BIOCHEM 1001 purposes.

Biology Textbooks

Those without A level Biology or its equivalent may wish to do some reading. There are many good university textbooks available. A level Biology texts may be of interest but take an approach which differs from a university approach and are usually too linked to specific syllabuses.

Biology, 4th edition, Campbell et al, (Pearson) 2002, £46 is a good university text. There is a cut down version called Essential Biology, 2nd edition by the same authors published in 2003 (Pearson £31) which is approachable, but an odd size that will not fit well into bookcases.