School of Biological Sciences

BIOL813: Principles of Biochemistry

Subject Outline
Autumn, 2016
On-Campus
Wollongong

Subject Information
Credit Points: 6
Pre-requisite(s): BIOL103 & CHEM101 and CHEM102 or CHEM104 & CHEM105
Co-requisite(s): Nil
Restrictions: Nil
Contact Hours: 2 hrs Lectures, 3 hrs Practical

Subject Contacts
Subject Coordinator/Lecturer
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Consultation mode and times: Email for appointment

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Consultation mode and times: Email for appointment

Lecturer
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Consultation mode and times: Email for appointment

Student Support and Advice
For general enquiries please contact the StudentHub 41:
Location: 41.138B
Telephone: 61 2 4221 3492
Email: smah-students@uow.edu.au
Student Consultation and Communication

University staff receive many emails each day. In order to enable them to respond to your emails appropriately and in a timely fashion, students are asked to observe basic requirements of professional communication:

Consider what the communication is about
- Is your question addressed elsewhere (e.g. in the subject outline or, on the eLearning site)?
- Is it something that is better discussed in person or by telephone? This may be the case if your query requires a lengthy response or a dialogue in order to address. If so, see consultation times above and/or schedule an appointment.
- Are you addressing your request to the most appropriate person?

Specific email subject title to enable easy identification of issue
- Identify the subject code of the subject you are enquiring about (as staff may be involved in more than one subject) put this in the email subject heading. Add a brief, specific query reference after the subject code where appropriate.

Professional courtesy
- Address the staff member appropriately by name (and formal title if you do not yet know them).
- Use full words (avoid ‘text-speak’ abbreviations), correct grammar and correct spelling.
- Be respectful and courteous.
- Allow 3 – 4 working days for a response before following up. If the matter is legitimately urgent, you may wish to try telephoning the staff member (and leaving a voicemail message if necessary) or inquiring at the School Office.
- Please ensure that you include your full name and student number and identify your practical class or tutorial group in your email so that staff know who they are communicating with and can follow-up personally where appropriate.
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Section A: General Information

Subject Learning Outcomes

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<tr>
<th>On completion of this subject, students should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Describe the major classes of macromolecules and their subunits;</td>
</tr>
<tr>
<td>2. Describe the basic principles of enzyme function;</td>
</tr>
<tr>
<td>3. Describe the information flow from DNA to protein;</td>
</tr>
<tr>
<td>4. Perform the calculations necessary to relate physical amounts and concentrations of biochemicals;</td>
</tr>
<tr>
<td>5. Interpret biochemical data and reach valid scientific conclusions;</td>
</tr>
<tr>
<td>6. Display the following experimental skills:</td>
</tr>
<tr>
<td>i Safe and responsible conduct in laboratories,</td>
</tr>
<tr>
<td>ii The ability to dispense and manipulate small (μl) volumes accurately,</td>
</tr>
<tr>
<td>iii Use and understand the operation of a limited range of modern laboratory equipment.</td>
</tr>
</tbody>
</table>

Subject Description


eLearning Space

This subject has materials and activities available via eLearning. To access eLearning you must have a UOW user account name and password, and be enrolled in the subject. eLearning is accessed via SOLS (student online services). Log on to SOLS and then click on the eLearning link in the menu column. For information regarding the eLearning spaces please use the following link: http://uowblogs.com/moodlelab/files/2013/05/Moodle_StudentGuide-1petpo7.pdf

Lecture, Tutorial, Laboratory Times

All timetable information is subject to variation. Check latest timetabling information on the ‘Current Student’ webpage on UOW website or log into SOLS to view your personal timetable prior to attending classes. http://www.uow.edu.au/student/index.html

Timetable information can be accessed from http://www.uow.edu.au/student/timetables/info/index.html

Key University Dates can be accessed from http://www.uow.edu.au/student/dates/index.html

Readings, References and Materials

Textbooks

The following text(s) will need to be purchased by students enrolled in this class.


Prescribed Readings (includes eReadings)

Nil

Materials

UOW Approved Calculator
Laboratory Coat
Recommended Readings
The following references complement the prescribed readings and textbooks:

Biochemistry (6th edition) Berg, Tymoczko & Stryer (574.192/49)

Biochemistry (3rd edition) Mathews, van Holde & Ahern (574.192/88)

iGenetics (3rd edition) Russell (576.5/5)

Recommended readings are not intended as an exhaustive list, students should use the Library catalogue and databases to locate additional resources.

Recent Changes to this Subject
Minor update to assessment weightings and adjustments to timetable

List of Topics Covered
The following are examples of the topics to be covered in this course. This is not an exhaustive list and will be subject to change.

A Timetable of Topics will be available from the eLearning site in week 1 of session.

- Amino acids: properties and functional groups
- Protein structure and separation of proteins
- Carbohydrates and Glycobiology
- Nucleotides & Nucleic acids
- Lipids and Membrane structure and function
- Genes & chromosomes
- Replication in prokaryotes and eukaryotes
- Transcription in prokaryotes and eukaryotes
- Translation and protein modifications
- Protein Function & ligand binding
- Enzymes and how they work
- Enzyme Kinetics and Regulation
- Bioenergetics and Metabolism
Section B: Assessment

Assessment Summary

<table>
<thead>
<tr>
<th>Assessment Item</th>
<th>Form of Assessment</th>
<th>Due Date</th>
<th>Return/feedback Due Date</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment 1</td>
<td>Practical Worksheets</td>
<td>At the conclusion of practical class</td>
<td>Within 21 days of due date</td>
<td>15%</td>
</tr>
<tr>
<td>Assessment 2</td>
<td>Mid-session Theory Quiz</td>
<td>Week 10 during prac class</td>
<td>Within 21 days of due date</td>
<td>20%</td>
</tr>
<tr>
<td>Assessment 3</td>
<td>Prac Quiz</td>
<td>Week 8 during prac class</td>
<td>Within 21 days of due date</td>
<td>10%</td>
</tr>
<tr>
<td>Assessment 4</td>
<td>Final Exam</td>
<td>During exam period</td>
<td>Release of results</td>
<td>55%</td>
</tr>
</tbody>
</table>

Total Marks 100%

Details of Assessment Tasks

Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

Assessment 1
- Practical Worksheets
- Due date: At the conclusion of practical class
- Weighting: 15%
- Submission: Online
- Type of Collaboration: Individual or Group Assessment
- Length: To be completed during and following each prac class
- Details: Will contain experimental data, calculations and short answer questions.
- Style and format: Reports which may include online post-lab quiz questions
- Subject Learning Outcomes: 4, 5, 6
- Marking Criteria: Marked against a standardised answer sheet

Assessment 2
- Mid-session Theory Quiz
- Due date: Week 10 during prac class
- Weighting: 20%
- Submission: Submit a hardcopy of your assessment to your lecturer in class
- Type of Collaboration: Individual Assessment
- Length: 60 min
- Details: Multiple choice and short answer questions
- Style and format: In-class test
- Subject Learning Outcomes: 1, 2, 3
- Marking Criteria: Marked against a standardised answer sheet

Assessment 3
- Prac Quiz
- Due date: Week 8 during prac class
- Weighting: 10%
- Submission: Submit a hardcopy of your assessment to your lecturer in class
- Type of Collaboration: Individual Assessment
- Length: 30 min
- Details: Short answer questions
- Style and format: In-class test
- Subject Learning Outcomes: 4, 5
- Marking Criteria: Marked against a standardised answer sheet
**Assessment 4**

<table>
<thead>
<tr>
<th>Due date</th>
<th>Final Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighting</td>
<td>55%</td>
</tr>
<tr>
<td>Submission</td>
<td>Exam papers and answers must be submitted at the conclusion of the exam.</td>
</tr>
<tr>
<td>Type of Collaboration</td>
<td>Individual Assessment</td>
</tr>
<tr>
<td>Length</td>
<td>3 hours</td>
</tr>
<tr>
<td>Details</td>
<td>Multiple choice and short answer questions covering both theory and practical content</td>
</tr>
<tr>
<td>Style and format</td>
<td>Final Exam</td>
</tr>
<tr>
<td>Subject Learning Outcomes</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>Marked against a standardised answer sheet</td>
</tr>
</tbody>
</table>

### Minimum Requirements for a Pass in this Subject

To receive a clear pass in this subject a total mark of 50% or more must be achieved. In addition, failure to meet any of the minimum performance requirements is grounds for awarding a Technical Fail (TF) in the subject, even where total marks accumulated are greater than 50%.

The minimum performance requirements for this subject are:
- achieve a minimum of 45% in the final examination
- meet the minimum participation requirements set out below.

### Minimum Student Attendance and Participation

It is expected that students will allocate 12 hours per week to this subject, including any required class attendance, completion of prescribed readings and assessment tasks.

Student attendance at tutorials, practicals, seminars and/or simulations is compulsory and students must attend at least 100% of classes. Absences will require the submission of an application for Academic Consideration via SOLS and the presentation of suitable documentation, for example a Medical Certificate, to Student Central as soon as practical. For further details about applying for academic consideration visit the Student Central webpage: [http://www.uow.edu.au/student/central/academicconsideration/index.html](http://www.uow.edu.au/student/central/academicconsideration/index.html)

If you miss more than one practical for whatever reason, see the subject coordinator as soon as possible. All practicals are assessable whether attended or not, therefore the onus is on you to catch up on any material that you may have missed. You must do this by personal study and by seeking assistance from lecturers and/or demonstrators if necessary.

### Scaling

Scaling may occur in this subject at the end of session by the Unit Assessment Committee and/or Faculty Assessment Committee (FAC). Marks will only be scaled to ensure fairness/parity of marking across groups of students. Scaling will not affect any individual student’s rank order within their cohort. For more information refer to Assessment Guidelines – Scaling: [http://www.uow.edu.au/about/teaching/UOW039331.html](http://www.uow.edu.au/about/teaching/UOW039331.html)

### Late Submission

Late submission of an assessment task without an approved extension of the deadline is not acceptable. If you are unable to submit an assessment due to extenuating circumstances (e.g. medical grounds or compassionate grounds), you can make an application of academic consideration. Not all circumstances qualify for academic consideration. For further details about applying for academic consideration visit the Student Central webpage: [http://www.uow.edu.au/student/central/academicconsideration/index.html](http://www.uow.edu.au/student/central/academicconsideration/index.html)
Late Submission Penalty
Late submission of an assessment task without an approved extension of the deadline is not acceptable. Marks will be deducted for late submission at the rate of 10% of the total possible marks for that particular assessment task per day. This means that if a piece of work is marked out of 100, then the late penalty will be 10 marks per day (10% of 100 possible marks per day). The formula for calculating the late penalty is the total possible marks x 0.10 x number of days late. For the purposes of this policy a weekend (Saturday and Sunday) will be regarded as two days.

No marks will be awarded for work submitted after the assessment has been returned to the students.

System of Referencing Used for Written Work
The Author-Date (Harvard) referencing system should, unless otherwise specified for a particular assessment (check Details of Assessment Tasks), be utilised. A summary of the Harvard system can be accessed on the Library website at: http://public01.library.uow.edu.au/refcite/style-guides/html/

Use of Internet Sources
Students are able to use the Internet to access the most current information on relevant topics and information. Internet sources should only be used after careful critical analysis of the currency of the information, the role and standing of the sponsoring institution, reputation and credentials of the author, the clarity of the information and the extent to which the information can be supported or ratified by other authoritative sources.

Plagiarism
The full policy on Academic Integrity and Plagiarism is found in the Policy Directory on the UOW website.

“The University’s Academic Integrity and Plagiarism Policy, Faculty Handbooks and subject guides clearly set out the University’s expectation that students submit only their own original work for assessment and avoid plagiarising the work of others or cheating. Re-using any of your own work (either in part or in full) which you have submitted previously for assessment is not permitted without appropriate acknowledgement. Plagiarism can be detected and has led to students being expelled from the University.

The use by students of any website that provides access to essays or other assessment items (sometimes marketed as ‘resources’), is extremely unwise. Students who provide an assessment item (or provide access to an assessment item) to others, either directly or indirectly (for example by uploading an assessment item to a website) are considered by the university to be intentionally or recklessly helping other students to cheat. This is considered academic misconduct and students place themselves at risk of being expelled from the University.”

Submission of Assessments
Refer to the submission requirements under the details of the individual assessments. Students should ensure that they receive a receipt acknowledging submission. Students will be required to produce this in the event that an assessment task is considered to be lost. Students are also expected to keep a copy of all their submitted assessments in the event that re-submission is required.

Assessment Return
Students will be notified when they can collect or view their marked assessment. In accordance with University Policy marked assessments will usually only be held for 21 days after the declaration of marks for that assessment.
Section C: General Advice

Students should refer to the Faculty of Science, Medicine and Health website for information on policies, learning and support services and other general advice.

University Policies

Students should be familiar with the following University policies:

a. Code of Practice – Teaching and Assessment

b. Student Charter

c. Academic Integrity and Plagiarism Policy

d. Student Academic Consideration Policy

e. Course Progress Policy

f. Graduate Qualities Policy

g. Academic Complaints Policy (Coursework and Honours Students)

h. Policy and Guidelines on Non-Discriminatory Language Practice and Presentation

i. Workplace Health and Safety, where relevant

j. Intellectual Property Policy

k. Policy on Ethical Objection by Students to the Use of Animal and Animal Products in Coursework Subjects, where relevant

Student Support Services and Facilities

Students can access information on student support services and facilities at the following link. This includes information on “Academic Support”, “Starting at University”, “Help at University” as well as information and support on “Career’s and Jobs”. http://www.uow.edu.au/student/services/index.html

Student Etiquette

Guidelines on the use of email to contact teaching staff, mobile phone use in class and information on the university guide to eLearning ‘Netiquette’ can be found at http://www.uow.edu.au/student/elearning/netiquette/index.html
## Version Control Table

<table>
<thead>
<tr>
<th>Version Control</th>
<th>Release Date</th>
<th>Author/Reviewer</th>
<th>Approved By</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>20160208</td>
<td>Dr Tracey Kuit – Subject Coordinator</td>
<td>Mrs Sonia Losinno – ADE Nominee</td>
<td>Changes to submission of assessment 1</td>
</tr>
<tr>
<td>1</td>
<td>20151118</td>
<td>Dr Tracey Kuit – Subject Coordinator</td>
<td>Mrs Sonia Losinno – ADE Nominee</td>
<td>Final BIOL813 Autumn 2016 Subject Outline</td>
</tr>
</tbody>
</table>