# Unit Outline

**Biochemistry 234. Semester 2. 2012**

## Unit Details

<table>
<thead>
<tr>
<th>Unit Index No:</th>
<th>311425</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit points:</td>
<td>25</td>
</tr>
<tr>
<td>Prerequisite Units:</td>
<td>Biochemistry 233</td>
</tr>
<tr>
<td><strong>Online Teaching Unit Category</strong></td>
<td>Essential. Unit materials and resources are available from the unit’s Blackboard site and it is essential that students use this site to complete the unit. The online unit site is designed to be a significant component of the unit. It is absolutely necessary for students to have access to the Internet.</td>
</tr>
<tr>
<td><strong>Requirements</strong></td>
<td>Ownership of, or access to, recommended textbook (or companion/supplementary textbook). Ownership of, or access to, appropriately configured computer with internet and web access (either on or off campus).</td>
</tr>
<tr>
<td><strong>Unit Coordinator</strong></td>
<td>Dr Steven Bottomley</td>
</tr>
</tbody>
</table>
| **Address** | School of Biomedical Sciences  
Curtin University of Technology  
GPO Box U1987  
PERTH WA 6845 |
| **Email:** | s.bottomley@curtin.edu.au |
| **Phone:** | (08) 9266 4369 |
| **Fax:** | (08) 9266 2342 |

*Please carefully read ALL of this unit outline before commencing this unit!*
Welcome!

Hello, and welcome to Biochemistry 234.

This unit continues your comprehensive introduction to biochemistry that you received with Biochemistry 233. Biochemistry 234 introduces you to some anabolic metabolic pathways, basic membrane structure, the integration of metabolism, cell signaling, hormone action and various topics outlining biochemistry's role and importance in society.

Success with Biochemistry 234 is based upon your ability to remember detail, ask questions, research, solve problems, and integrate the subject into a coherent and understandable picture. It is important to talk about the subject with your fellow students, your demonstrators, and lecturers.

Take the time to read this unit outline carefully and thoroughly. It explains most of what you need to know about Biochemistry 234. If you have any difficulty understanding what is required of you, or you need clarification of any item in this unit outline, then please contact the unit coordinator immediately.

I hope you will find this unit enjoyable, challenging and rewarding. I particularly hope that it stimulates your interest in biochemistry to the extent that you go on to pursue your studies at a higher level.

Dr Steven Bottomley
Unit Coordinator & Lecturer
Biochemistry 234

First things first...What you need to do first!

• Read and understand this entire unit outline. You must understand what is required of you and how the unit is structured. If you do not understand any part of this unit outline, then please ask your unit coordinator for further clarification.
• Log on to the Biochemistry 234 Blackboard site and check for any announcements or posts to the discussion board.
Learning Biochemistry, Thinking Skills, and Unit Learning Outcomes

There are various ways to describe and explain how people learn. One popular way proposes that there are three categories of learning: Cognitive (thinking skills), psychomotor (manual and physical skills), and affective (feelings and emotions)\(^1\). That is, you learn by thinking, doing and feeling! Much of Biochemistry 234 will focus on helping you develop your thinking and manual skills in biochemistry. Most of these skills will be directly assessed as outlined below.

**Unit Learning Outcomes**

Learning outcomes are a useful guide for you to know what to expect from the unit and what to expect from yourself. You may forget some of the content of biochemistry in the future, but the thinking skills you develop in this unit will last you a lifetime. This is called ‘lifetime learning’. Both theoretical and practical aspects of biochemistry are covered. The table below shows the five learning outcomes, how the outcomes are assessed, and the level of thinking\(^1\), and practical, skills addressed by the outcomes.

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Assessment of Outcomes</th>
<th>Thinking or Practical Skills(^1) Addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Remember and understand facts, techniques, and concepts pertaining to the biochemistry syllabus</td>
<td>Mid semester exam End of semester exam</td>
<td>Remember Understand Apply</td>
</tr>
<tr>
<td>2 Communicate, analyse, and evaluate biochemical knowledge</td>
<td>PeerWise Assignment</td>
<td>Remember Understand Apply Analyse Evaluate Create</td>
</tr>
<tr>
<td>3 Use computers and other appropriate technological tools to manage and analyse scientific data</td>
<td>Practical Report</td>
<td>Remember Understand Apply Analyse</td>
</tr>
<tr>
<td>4 Apply new and existing knowledge to solve problems in biochemistry</td>
<td>Mid semester exam End of semester exam Practical Report</td>
<td>Remember Understand Apply Analyse</td>
</tr>
<tr>
<td>5 Demonstrate competence and safety in laboratory practice</td>
<td>Practical Report Laboratory Book</td>
<td>Remember Understand Apply Various manual skills</td>
</tr>
</tbody>
</table>

**Syllabus**

A syllabus is a brief list the topics to be learned in a unit. The syllabus is represented by the topics of a lecture, practical, or tutorial. There are six general themes to the syllabus for Biochemistry 234 and these themes are represented by various topics. The topics currently

representing each theme *may change* to reflect modifications and updates.

1. **Cellular metabolism and nutrient homeostasis**
   This theme is currently represented by the topics: gluconeogenesis, fed/fasted state, and nutrient homeostasis

2. **Protein purification**
   This theme is currently represented by the topics: protein purification strategies, protein purification techniques, buffer preparation (practical), gel chromatography (practical), and lysozyme purification (practical)

3. **Cell structure and transport**
   This theme is currently represented by the topics: membrane proteins, membrane lipids, the erythrocyte membrane (practical), membrane transport, protein degradation, and protein targeting.

4. **Cell signaling, control, and regulation**
   This theme is currently represented by the topics: general regulatory mechanisms, cell signaling concepts, pancreatic hormones and insulin action, glucagon cAMP and hormone action, calcium and hormone action, steroid hormones, lipoprotein receptors, extracellular matrix, and cell adhesion.

5. **Bioinformatics**
   This theme is currently represented by the topics: bioinformatics 1, bioinformatics 2, and bioinformatics (practical tutorial)

6. **Biochemistry in Society**
   This theme is represented by various topics demonstrating the relevance of biochemistry to society. The topics may vary from year to year.

### Unit Coordinator and Lecturers

If you have any questions or requests specifically relating to your ability to conduct Biochemistry 234, then you should contact your unit coordinator in the first instance. Your unit coordinator is Dr Steven Bottomley. Your lecturer for this unit will be Dr Steven Bottomley and other invited lecturers or practical demonstrators. Contact details for your unit coordinator and lecturers are shown in the table below.

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>email</th>
<th>Telephone &amp; Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Steven Bottomley</td>
<td>308:204</td>
<td><a href="mailto:s.bottomley@curtin.edu.au">s.bottomley@curtin.edu.au</a></td>
<td>9266 4369 (T)</td>
</tr>
<tr>
<td>(unit coordinator &amp; lecturer)</td>
<td></td>
<td></td>
<td>9266 2342 (F)</td>
</tr>
</tbody>
</table>

### Communication with lecturers

Biochemistry lecturers are always approachable and welcome your questions. Do not be afraid to ask the lecturer questions about the topics in this unit. The lecturer may ask you questions to ascertain your level of knowledge and understanding and to allow the lecturer to answer you appropriately. Consequently, you should be prepared and have made an attempt to answer your questions concerning the topic before asking the lecturer. You should also be aware that the demands on a lecturer’s time are great and the lecturer may
not be able to respond immediately to your question (either from a personal visit, telephone call, email, or written note).

Most lecturers (academics) are involved in both teaching and research. You should know that up to 50% of an academic’s total time (in a year) is available for teaching and the remaining time is for research, meetings, and many other duties.

Please also note that as a result of a recent Academic Workload Management System implemented by the university (which allocates time for all activities conducted by a lecturer) the maximum time available for the activities of consultation, assessment, and feedback is 1.5 hours per student. This will likely affect the frequency, coverage, and quality of these particular activities.

Generally, all lecturers have an ‘open door’ policy. This means that the lecturers are available at most times during semester for student consultation and questions. However, this does not mean that you can ‘barg in’ and demand attention at any time you like. It is polite to enquire if the lecturer is available to meet with you. If the lecturer can’t see you immediately, or you need to establish a definite time for the meeting, then you will be required to make an appointment. There may also be times during semester where the lecturer, for whatever reason, is unavailable for any student consultation.

If for some reason, you feel you can’t approach the lecturers in person then take advantage of the other ways of communicating with lecturers such as: telephone, during class (by asking questions), by the Blackboard bulletin board, by email, or even by a note left in the lecturer’s mail box (found outside the office on the ground floor in Building 308)! You must always include your name, student number, and the unit you are taking in any correspondence with your lecturer or unit coordinator. Anonymous calls or notes will generally be ignored.

**Unit Materials**

**Textbooks and References**

Many topics in this unit are not covered by one textbook. However, the following textbook may be useful for some of the topics:


The earlier edition of this textbook will also suffice.

It is up to you to seek out, and use, alternative sources of information from other appropriate textbooks, monographs, journal articles, or information on the Internet. In some cases lectures, or practical, may include references or suggestions for ‘further reading’ that you may like to use to help you learn. Other textbooks and references you may find useful include:


The library has some of these and other books on biochemistry, so visit your library. Some biochemistry textbooks can be borrowed from the School and are kept in a locked bookcase in building 308 on the first floor. You need to see the School secretary to borrow books. Various other resources to help you with your study include resources on Blackboard, your friends, colleagues, tutors, lecturers, and professional people you know.

**Web-Based Resources**

You should now be able to effectively explore the Internet where there is a wealth of freely available information. You may also be referred to some web sites during the course of your study. **Please Note:** When using the Internet you must ensure that the source of information comes from a reputable, qualified, and professional institution or person.

Useful web sites include:

- Biochemistry 234 Blackboard site. This can be accessed from your Oasis account or from [http://lms.curtin.edu.au](http://lms.curtin.edu.au)
- Curtin University library have various guides for study and research skills see: [http://library.curtin.edu.au/study-and-research-tools/index.cfm](http://library.curtin.edu.au/study-and-research-tools/index.cfm)
- School of Biomedical Sciences Biochemistry web site: [http://www.biomed.curtin.edu.au/](http://www.biomed.curtin.edu.au/)
- If you use the Harvey & Ferrier. (2011) *Biochemistry* textbook then each text has a code on the inside of the front cover to access the text book’s web site

**Learning Aids**

The learning aids for this unit are extensive and include:

- Your textbook
- Your lectures, ilectures, and Adobe Acrobat (pdf) files of lectures
- The various web-based resources listed above
- ‘Questions for learning - online’. These are various online (via Blackboard) multiple choice, and short answer, questions that cover the unit syllabus and learning outcomes.
- ‘Questions for learning – practicals’. These are various short answer questions provided in your laboratory study guide or through your laboratory activities
- ‘Questions for learning – lectures’. These are various multiple-choice or short answer questions given during some of the lectures
- PeerWise Assignment (see PeerWise later)
- Feedback and tutorial sessions. These are usually given during a scheduled practical session to review the laboratory activities and other topics
- The Laboratory Techniques Study Guide (from Biochemistry 233)
• Acid/Base Chemistry FAQ (Frequently Asked Questions) notes (on Blackboard)
• Revision of organic chemistry notes (on Blackboard).
• Interactive tutorials and resources at the School of Biomedical Sciences Biochemistry web site at: http://www.biomed.curtin.edu.au/biochem/
• Blackboard bulletin board and email

You should make use of these aids to complement and enhance your own learning.

Questions for Learning

‘Questions for Learning’ are designed as a formative learning aid. That is, you can use the ‘Questions for Learning’ to help you learn, determine ‘what you need to know’ for exams, and to help you achieve the learning objectives of the unit. Essentially, you can determine the extent of your learning without being assessed on your answers to these questions. The questions are mostly multiple-choice, but could also be short answer or other types of questions.

These ‘Questions for Learning’ can be found online (Blackboard), in lectures, and in practicals. You can choose to answer as many ‘Questions for Learning’ as you like: The more questions you answer the better your knowledge and the better prepared you will be for your exams – it is up to you! Please note that all ‘Questions for Learning’ will be removed from Blackboard the day before the commencement of the online exams. This is a necessary precaution to prevent some potentially unscrupulous students from trying to access the material during the online exam.

Your responsibility

Many resources, and learning aids, are available to assist and guide you in your learning. However, ultimately, you are responsible for your own learning!

Delivery of Unit (Lectures, Practicals, Tutorials)

5 hours per week allocated as follows:
• Lecture 2 x 1 hour
• Practicals (includes practical activities, feedback and tutorials) 1 x 3 hours

Lectures

Attendance at all lectures is strongly recommended. Why? Well, the lecturer may cover material in a slightly different way or have a particular emphasis on some concepts which will not always be obvious in the handouts (printed or electronic). Lectures also give you a convenient opportunity to ask your lecturer questions and to discuss the subject with your colleagues. It is by asking questions that you learn! You ask yourself questions to guide your learning and ask your lecturer questions when you need further help understanding. Some lectures are presently being modified, and updated, and may not yet be available on Blackboard.
The subject of a lecture may be given earlier or later than that shown in the indicated schedule. Some lectures may also be extended or curtailed. The content of the lectures may also change at the ‘last minute’. You should understand that these changes are usually designed to present recent material, aid student learning, or to adjust to the perceived progress of the student cohort. They are not meant to be inconvenient or to confuse. These changes are at the discretion of the lecturer and unit coordinator and may also be the result of feedback from the student cohort.

Lecture presentations are not in themselves sufficient as study material to pass this unit! It is essential that you read the appropriate chapters in your text, in journal articles, or other reference books. The lectures should be viewed only as an introduction and guide to each topic. Your understanding of each topic will only be achieved satisfactorily with broader reading of your text and other reference materials. Not all questions in your assessments can be answered by simple regurgitation of lecture content simply because your learning objectives (see above) also stipulate that you must learn to apply, analyse, evaluate and create biochemical facts, concepts and principles. Lectures will be given at dates and times shown in the proposed study schedule.

You will find that lectures are provided to complement your lectures. The lectures may not be available due to various unforeseen problems with the recording equipment or mistakes in organization. Some lectures may also have only short or no lectures due to the way that lectures are organised.

Please understand the following:

- Please do not expect a lecture to always be a ‘one-way’ learning experience (lecturer to you) where you can ‘sit back and relax’ or be ‘entertained’. You will be expected to think and to contribute during the lecture through activities such as: answering questions, asking questions, providing feedback, performing calculations, and applying your knowledge. The lecture then becomes a more active and involved ‘two-way’ learning experience that will help you!
- Be prepared for lectures! Read the lecture notes, textbook chapters, and any other reading before attending lectures
- In some lectures there may be no formal presentation or only a brief presentation. The remainder of the lecture will be conducted as a group discussion where you will be expected to discuss and answer questions. In these cases you will be asked to read specific lecture notes, or other material, before attending the lecture.
- Lectures may not be sufficient study material to help you pass this unit! That is, you may need to do additional study if, for example, you do not have appropriate knowledge of chemistry or biology.
- Lectures should be viewed as your study guide to each topic.
- Parts of the syllabus may not be presented as lectures (e.g. as practical laboratory activities), but you still need to study and know this subject matter.
- It is essential that you read the appropriate chapters in your text, other books, or other credible sources of information before and after each lecture.
- Not all questions in your assessments can be answered by simple regurgitation of lecture content. For example, problem-solving questions will require you to integrate and apply your knowledge. (Please read the learning outcomes).
• Your attention in the lecture is important for your learning. Consequently, please don’t attend the lecture if you intend to talk with your friends about other things or if you want to sleep. Any unnecessary, disruptive, or unrelated activity by students during lectures may result in the embarrassment of the student(s) being asked to leave the lecture.

• If lectures and lecture notes are unavailable for any reason (or even if they are available) you are still responsible for making your own notes during the lecture!

Your understanding of each topic will only be achieved with broader reading of your text and other reference materials. Remember, it is your understanding of the topics that will be assessed in this unit! You may also find that you need to study more (or less) than other students depending upon your existing knowledge and ability. Please understand that ultimately you are responsible for your own learning!

We continually try to review the content of Biochemistry 234 in an attempt to keep it up to date, to implement new teaching and learning approaches, to make it interesting, and to account for the varying academic backgrounds of students. Consequently, lecture and practical content may be changed at any time at the discretion of the lecturer or unit coordinator. The subject of a lecture may be given earlier or later than that shown in the indicated schedule. Some lectures may also be extended or curtailed. These changes may also depend upon the perceived progress of the student cohort and other factors. However, these changes are always made with the intention that you will benefit from a better learning and teaching environment. You will also be notified of any changes that may affect assessments.

Please also note that the recent Academic Workload Management System implemented by the university (which allocates time for all activities conducted by a lecturer) allocates a maximum time of 2 hours for updating, reviewing, or changing an existing lecture topic or developing a new lecture topic in an existing unit. Consequently, this will likely affect the frequency, coverage, and quality of updates for existing topics or the development of new topics for this unit.

**Practical, Tutorial, and Feedback Classes**

You must attend ALL practicals. The practicals will comprise both ‘hands on’ and theoretical exercises to develop your thinking skills, manual skills, and help you achieve your learning outcomes. Most practicals are organised to have up to three components: (1) various learning activities (either experiments or tutorials), (2) feedback for the previous weeks activity, and (3) activities for preparing for the subsequent weeks practical.

**Important points to note about Practicals:**

• The practical sessions will be organized as a series of laboratory activities. The activities may include such things as: calculations, writing, critical thinking, experiments, manual skills, and answering questions.

• You should attempt ALL laboratory activities and record the details in your laboratory notebook. You should use your laboratory book, and any additional documentation that may be provided, to record your laboratory activities. Any additional
documentation you may use for practical activities should be fixed (by glue or staples) into your laboratory book.

- You may like to also read the Laboratory Techniques Study Guide from Biochemistry 233 to review some practical techniques.
- You should read the practical notes before attending the class and complete any pre-lab activities.
- You should use all of your time in the laboratory to complete the required practical activity.

Practical sessions are conducted in either the 'wet labs' in 310.103 or the 'Mac Lab' in 308:104 according to the study schedule. Attendance at practical sessions is essential because, as a biomedical scientist in medical science, molecular biotechnology or human biology you need to learn the requisite laboratory skills.

The laboratory officer for Biochemistry 234 will ensure that you have all the materials for your practical. Please note that at least one staff member (usually the laboratory officer, a laboratory demonstrator, or lecturer) will be available at all times in the laboratory area during the practical session.

**Safety in Practicals**

The correct clothing must be worn to all laboratory sessions and the safety regulations must be observed at all times. Safety regulations are posted in the laboratory. These regulations are to help maximize your safety, so please ensure that you read and understand the regulations. Minimum safety clothing includes covered shoes, a full-length laboratory coat (covering arms, torso, and down to the top of the knees), and latex gloves when necessary (gloves will be provided in the laboratory). Laboratory coats are provided for you and cannot be taken out of the laboratory. Some practical procedures may also require safety spectacles. Students not wearing the required safety clothing, or not following the safety regulations, will be dismissed from the class and be required to leave the laboratory immediately. The supervising staff member may permit the student to return to the same class (within one hour of the start of the class) only if they have complied with the appropriate safety clothing and regulations.

**Tutorials**

Tutorials may also be given in some of the practical sessions and may occur in addition to, and at the same time as, the feedback sessions. These tutorials may comprise additional activities that are designed to help you learn particular aspects of biochemistry.

**Feedback**

Feedback is necessarily a two-way process. Feedback involves you providing information to help the lecturers learn more about you, your knowledge, or correct any misunderstanding. Your lecturers provide you information to help you learn, correct any misunderstanding, or clarify what you need to do. Feedback in this unit is considerable and occurs in two basic forms:
(1) when verbal or written information is exchanged directly between you and your lecturer
(2) when you receive written answers or explanations from an assessment, from ‘Questions for Learning’, from lectures, from any practical activity, feedback session, or from any tutorial.

Feedback can occur at any time during semester either in class or out of class. In fact, there are specific ‘Feedback’ sessions during the practicals. These feedback sessions are essential and are an excellent opportunity (in a relatively small class) for you to ask questions and both give and receive feedback on your laboratory activities, lectures, and assessments. These sessions can be a very useful way to receive guidance and clarification on the entire syllabus. The activities in the feedback session will vary and may include: study activities, discussion of lectures, practicals, and assignments. The time taken for these sessions is variable and will depend to a certain extent on student participation. However, it will be no more that a usual practical session of three hours. You MUST take feedback seriously and don’t be afraid to ask questions! It is by asking questions (of yourself and your lecturer) that you learn!

Feedback ‘out of class’ can occur through Curtin’s Blackboard learning management system (e.g. Announcements and the Bulletin Board) by any other form of acceptable communication (e.g. email or personal appointment).

**Blackboard**

Blackboard is Curtin University’s e-learning infrastructure and is used extensively in Biochemistry 234. It is important, and your responsibility, that you check the Blackboard discussion board, and announcements, **at least** once a day. Failure to check Blackboard may mean that you miss out on important information or details that affect your learning, your grade, or your progress in the unit.

**Study Load**

You will need to spend **at least** 5 hours a week outside of scheduled classes studying in this unit to be successful. You may need more time if you have trouble understanding a topic, or don’t have a strong background in chemistry or biochemistry. Keeping up with the work is one of the ways to be successful in this unit.

**Assessments**

All of the topics in the syllabus including information from lectures, textbook, practicals, and any other indicated resources are assessable. Assessment in Biochemistry 234 is designed with the following aims:

- to help you learn and understand biochemistry
- to give you various opportunities to demonstrate your learning and achievement of the learning outcomes. That is, your achievement in this unit does not depend upon just one ‘end of semester’ exam.
• reward your performance for achieving the learning outcomes
• allow you to study continuously rather than ‘cram’ at the end of semester
• provide appropriate and timely feedback
• discriminate between those students who do the work and those who do not
• establish, maintain, and protect internationally recognised academic standards
• monitor your learning and your achievement of the learning outcomes
• provide a formal evaluation of your achievement in this unit for your degree qualification

There are four components to the assessment in this unit as shown in the following table. If you work diligently you will find that all of the assessments are achievable. You should note that both the mid semester and end of semester exams form one component of assessment.

<table>
<thead>
<tr>
<th>No.</th>
<th>Components of Assessment</th>
<th>Form of Assessment</th>
<th>Semester Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Practical Activities</td>
<td>Practical Activities (Submission of laboratory reports &amp; evidence of maintaining a laboratory book)</td>
<td>20%</td>
</tr>
<tr>
<td>2</td>
<td>Online Assessments</td>
<td>Mid Semester Exam</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End of Semester Exam</td>
<td>25%</td>
</tr>
<tr>
<td>3</td>
<td>Assignment</td>
<td>PeerWise assignment</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>Assignment</td>
<td>Written assignment to be advised</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

**Important Notes**

In accordance with Curtin policy, you are advised that this unit is a significant unit in which failure twice may lead to termination of your course. You are required to attempt ALL components of the assessment. Failure to attempt one, or more, component of the assessment, where there is no valid reason for the lack of an attempt, may result in a ‘Failed-Incomplete’ (F-IN) grade being allocated at the end of semester regardless of the total mark achieved. You are also required to satisfactorily complete each component of the assessment to demonstrate that you have achieved the learning objectives. Satisfactory completion is usually 50% of the mark allocated for the component of assessment. Please note that the percent allocation of marks, or form of assessment, may be changed at the discretion of the unit coordinator. However, you will be notified of any change. Please also note that it is possible that some of your assessments will assume, and may require you to demonstrate, knowledge from Biochemistry 233.

**Assessment Details**

**Practical Assessment**

Each student should complete, and submit, weekly practical reports. The reports need to be completed and submitted at the end of each practical session. No late reports will be accepted. Further details on these reports, and laboratory book requirements, will be provided during the introductory practical session during the first week of semester.
You are advised to maintain a laboratory notebook (as detailed in Biochemistry 233). Loose-leaf pieces of paper to record your work are not acceptable in the laboratory and will not be accepted as evidence of your work in the laboratory.

Your laboratory notebook may be inspected, and indirectly assessed, anytime during the semester to help ensure that you are on the right track. You do not normally need to submit your completed laboratory notebook at the end of semester. There are two exceptions to this:

1. If you are awarded a supplementary assessment, then your laboratory book may be used as part of that assessment. That is, it will be reviewed to see if you have demonstrated appropriate and suitable work practices during semester.
2. If you have a borderline grade for the unit at the end of semester, then you may be requested to submit your laboratory book at the end of semester. That is, it will be reviewed to see if you have demonstrated appropriate and suitable work practices during semester.

Given these two conditions you should keep your laboratory book available and up-to-date until you know your final validated mark for the unit.

**Exams**

You must complete two supervised online exams worth a combined 50% of your total mark. The two exams together form one assessable component. The exams will be conducted online (through Blackboard), be two hours duration, and may be comprised of up to 100 questions. Most of these questions will be multiple choice but other types of questions such as multiple answer, fill-in-the-blank, or short answer may also be used. Most of the questions for these two exams will be either the same as, or similar to, the questions found in:

1. ‘Questions for Learning’ that you will find online (Blackboard), in your lectures, and in practicals.
2. Student questions in PeerWise (a small sample may selected by the unit coordinator)

Consequently, a useful strategy to study for the exams would be to try and answer all ‘Questions for Learning’ and as many questions as you like in PeerWise (this will also help your PeerWise score).

The mid semester assessment will generally cover the entire syllabus (practicals, lectures, and tutorials) of Biochemistry 234 from weeks 1 to 6 of the semester and will be conducted in the MacLab (308:104) at the time of your usual practical session. However, if a topic is divided into two or more lectures and straddles weeks 6 and 7 then the whole topic will be assessed and not just one part of the topic. You have one attempt at the assessment. Please refer to the study schedule.

The end of semester assessment will essentially cover the entire syllabus of Biochemistry 234 from weeks 7 to 13, although some subjects from the first 6 weeks may also necessarily be included. This assessment will be conducted in the MacLab (308:104) at the time of your usual practical session during the exam week. You have one attempt at the assessment. Please refer to the study schedule.
You will receive feedback from the mid semester exam, but not the end of semester exam. You will also receive automatic feedback for all ‘Questions for Learning’. The feedback will mostly comprise the answer to the question, your score for the question, and in some cases an explanation for the answer to the question. You will also receive feedback from questions written by your peers on PeerWise both as an answer to the question and as an explanation for the answer. You should take time to review all of this feedback to help you learn the subject. Further details of the exams, if necessary, will be given during semester.

**Important points to note about the mid and end of semester online assessments:**

Please note the following:

- These exams are School scheduled exam. They are NOT centrally scheduled exams. Consequently, these exams will NOT appear in your Oasis account during semester. Details of the location, date, and time of the exam will be given later in semester as an announcement on Blackboard. It is your responsibility to check Blackboard for announcements.
- It is your responsibility to attend the scheduled online exam at the announced date, time, and location. Student ID is required.
- You have one attempt at this exam there will be NO extensions, or deferments, of this exam. The only exceptions are medical or other extenuating circumstances (refer to the section on ‘Extensions’ and ‘Deferred Assessments’ above).
- No collaboration, books, or notes are allowed during online assessment either in printed or electronic form unless otherwise stated.
- Only the online assessment web site is to be open during the assessment. No other computer programs or web sites should be open during the online assessment. The only exception is the computer calculator or an application needed for the assessment and approved by the lecturer.
- Only simple, non-programmable, calculators are allowed during online assessment.
- Mobile phones should be turned off (or on silent) and not used for any reason during the assessment.
- It is a supervised exam and this means that a lecturer, or other approved person, will be present during the exam and will be scrutinizing your activity during the exam.

If a student is found to contravene any of these points then it may result in the student receiving zero marks for this assessment. If the student is also found to be cheating then they will face disciplinary action according to the Curtin University policy on academic misconduct.

**PeerWise Assignment**

PeerWise is a web-based system that is a unique, and innovative, way to learn biochemistry and develop your thinking skills. Students expressed a considerable amount of enthusiasm, and respect, for this system when it was used for Biochemistry 233.

It is said that you ‘learn by teaching’ and that is exactly what you will do with this assignment that is worth 10% of your total semester mark. You will research, design, and write your own multiple-choice questions (MCQ). You will use the PeerWise web-based system to write your questions, the distractors (incorrect answers), the correct answer, and an explanation. Your
questions will then be subject to review by your peers. You will also evaluate other students’ questions using PeerWise.

You will write at least four MCQ and evaluate eight questions written by other students according to the requirements. Points will be awarded based upon your contributions and the assessment of your questions by your peers. More details of the PeerWise assignment will be provided in a separate document on Blackboard.

**Written Assignment**

You are required to write a 15 minute lecture in PowerPoint format, with associated notes and references, on a topic that illustrates ‘Biochemistry in Society’. Further details of this assessment will be on Blackboard in the first few weeks of semester.

**Extensions**

Extensions of time for taking any of the required assessments are not usually possible. If there are any extenuating circumstances (such as a medical emergency) then alternative arrangements may be made on a case-by-case basis. However, evidence must be provided such as a dated, and signed, medical certificate.

**Late Submissions**

Any unauthorized late submission will result in a decrease in marks of at least 10% of the assessment mark for each day overdue. For example, if an assessment is worth 20% of your total semester mark then the penalty for two days overdue would be: 2 x (10/100 x 20%) = 4%. Thus, the total mark available for the assessment would be: 20 - 4 = 16%. This does not mean you would receive 16% because it would depend upon the quality of your submission according to the marking criteria.

**Supplementary Assessments**

If you fail the unit then you may be offered a supplementary assessment. Supplementary assessments are awarded only at the discretion of the Board of Examiners. They are not an automatic right and the Board of examiners will carefully review each individual case. The aim of a supplementary assessment is to allow the student a chance to correct minor problems or deficiencies in the initial assessment and not to gain extra study time or correct major problems. The number of supplementary assessments awarded for each student will be kept to a minimum for a study period and a particular course of study.

Supplementary assessments, if awarded, will be indicated on the official Curtin examination result statement posted to all students, and will also be listed on the School notice board about 24 hours after the Board of Examiners meeting. It is your responsibility to check your status. A student who does not take a scheduled supplementary assessment has no claim to a further assessment. If you are awarded a supplementary assessment it is imperative that you confirm the type, and schedule, of the assessment. Supplementary assessments may be one, or more, of the following: exam, assignment, laboratory book, essay, or project. The unit coordinator will determine the type of assessment after advice from the Board of Examiners.
Deferred Assessment

Deferred assessment is not automatic. Students may be permitted by the relevant Board of Examiners to defer an assessment for circumstances outside of the student’s control. However, a student’s overall performance may be taken into account in granting permission to defer an assessment. Applications for deferment on health grounds or as a result of extenuating circumstances must be submitted not later than seven (7) days after the end of the relevant assessment was due to be submitted during the semester. Detailed medical certificates should be attached to the application where appropriate. Please note that the percent allocation of marks, or form of assessment, may be changed at the discretion of the unit coordinator. However, you will be notified of any change. Please note that it is possible that some of your assessments will assume, and may require you to demonstrate, knowledge from Biochemistry 233.

Plagiarism Policy

Collaboration with other students is encouraged, but ALL submitted assignments and assessments must be YOUR OWN WORK. Consequently, you must be careful to appropriately cite all references you use in your answers to the assignment questions. Collusion or plagiarism will not be tolerated. Please note that electronic checks may be made on any submitted written assignment using specialist software that detects significant similarities from the Internet and from known references.

Please understand that it is not acceptable to simply copy the words of other students or authors when completing any assessment or assignment in this unit. This action constitutes plagiarism and is regarded as academic malpractice. The penalties for plagiarism can be severe and may include termination from your course of study. All direct quotes must be correctly attributed to the author and should be kept to a minimum. Also, you should include a list of references to acknowledge the source(s) of information used to produce any written work. You should read Curtin University's policy on academic (student) integrity and plagiarism at: [http://academicintegrity.curtin.edu.au/studentbook.html](http://academicintegrity.curtin.edu.au/studentbook.html).

Students Rights and Responsibilities

You are responsible for your own learning! It is also important for you to read and understand the following statement2:

“It is the responsibility of every student to be aware of all relevant legislation and policies and procedures relating to their rights and responsibilities as a student. These include: the Student Charter; the University’s Guiding Ethical Principles; the University's policy and statements on plagiarism and academic integrity; copyright principles and responsibilities; the University’s policies on appropriate use of software and computer facilities; students’ responsibility to check enrolment; deadlines, appeals and grievance resolution; and electronic communication with students. Further information is available at: [www.students.curtin.edu.au/rights/](http://www.students.curtin.edu.au/rights/)

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Mobile Phones

As a courtesy to both lecturers and other students, if you have a mobile phone, please ensure that it is turned off (or on silent) during lecture, tutorial and practical sessions. Students who do not comply with this request may be asked to leave the class. Mobile phones should also be turned off (or on silent) and not used at all during exams.
<table>
<thead>
<tr>
<th>Week</th>
<th>Week Begin</th>
<th>Lecture Tuesday 2pm-3pm 302.002</th>
<th>Lecture Wednesday 5pm-6pm 302:002</th>
<th>Friday A: 9am-12noon Friday B: 1pm-4pm 310.103A</th>
<th>Assessment Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16-Jul</td>
<td>Introduction to Biochemistry 234</td>
<td>Gluconeogenesis [SB]</td>
<td>Introduction to Pracicals</td>
<td></td>
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<tr>
<td>7</td>
<td>27-Aug</td>
<td>Tuition Free Week</td>
<td>Tuition Free Week</td>
<td>Tuition Free Week</td>
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<tr>
<td>8</td>
<td>3-Sep</td>
<td>Cell Signalling Concepts [SB]</td>
<td>Pancreatic Hormones &amp; Insulin Action [EH]</td>
<td>Mid Semester Exam Friday 1pm-3pm 308:104</td>
<td>Mid Semester Exam</td>
</tr>
<tr>
<td>10</td>
<td>17-Sep</td>
<td>Steroid Hormones [CM]</td>
<td>Lipoprotein Receptors [CM]</td>
<td>Practical 7. Lysozyme</td>
<td>Practical Report 7</td>
</tr>
<tr>
<td>14</td>
<td>15-Oct</td>
<td>End of Semester Study Week</td>
<td>End of Semester Study Week</td>
<td>End of Semester Study Week</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>22-Oct</td>
<td>End of Semester Exam (to be advised)</td>
<td>End of Semester Exam</td>
<td>End of Semester Exam</td>
<td></td>
</tr>
</tbody>
</table>

Note: SB = Dr Steven Bottomley, EH= Professor Erik Helmerhorst, CM = Dr Cyril Mamotte and DC = Professor Deirdre Coombe.