# COURSE NOTES
## 2017

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</tbody>
</table>
# Course Identity

<table>
<thead>
<tr>
<th>Course Code</th>
<th>BABS3061</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Name</td>
<td>Medical Biotechnology</td>
</tr>
<tr>
<td>Academic Unit</td>
<td>School of Biotechnology and Biomolecular Sciences</td>
</tr>
<tr>
<td>Level of Course</td>
<td>Third-year Undergraduate</td>
</tr>
<tr>
<td>Units of Credit</td>
<td>6</td>
</tr>
<tr>
<td>Session(s) Offered</td>
<td>Session 2</td>
</tr>
<tr>
<td>Assumed Knowledge, Prerequisites or Corequisites</td>
<td>Level 1-2 Science</td>
</tr>
<tr>
<td>Hours per Week</td>
<td>6 hours per week</td>
</tr>
<tr>
<td>Number of Weeks</td>
<td>13 weeks</td>
</tr>
<tr>
<td>Commencement Date</td>
<td>Week 1, Session 2, 2017</td>
</tr>
</tbody>
</table>

## Course structure

<table>
<thead>
<tr>
<th>Component</th>
<th>Days/Session</th>
<th>Time</th>
<th>Day</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>1x2h</td>
<td>3-5pm</td>
<td>Tuesday</td>
<td>Pioneer Theatre</td>
</tr>
<tr>
<td>Laboratory</td>
<td>1x4h</td>
<td>9am-1pm</td>
<td>Friday</td>
<td>Lab 1102, Biosciences</td>
</tr>
</tbody>
</table>

## Staff

<table>
<thead>
<tr>
<th>Role</th>
<th>Staff Contact</th>
<th>Contact Details</th>
<th>Consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Coordinator</td>
<td>Kyle Thomson</td>
<td>Ph 9385 1299</td>
<td>By appointment</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="mailto:kyle.thomson@unsw.edu.au">kyle.thomson@unsw.edu.au</a></td>
<td></td>
</tr>
<tr>
<td>Co-Convenor</td>
<td>Jeff Welch</td>
<td><a href="mailto:j.welch@unsw.edu.au">j.welch@unsw.edu.au</a></td>
<td>By appointment</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Megan Lenardon</td>
<td><a href="mailto:j.wilson@unsw.edu.au">j.wilson@unsw.edu.au</a></td>
<td>By appointment</td>
</tr>
</tbody>
</table>
## Course Outline

### Course Description

Biotechnology innovation is in a large part driven by the requirement for improvements in medical diagnosis and therapy for a range of diseases including autoimmune diseases, diseases of inflammation and cancer. Innovations in biomolecular therapies such as recombinant proteins, monoclonal antibodies, vaccines, nucleic acid therapies, stem cells and novel bioinspired materials have and will continue to improve available medical treatments for many conditions. The course is designed to give students a detailed insight into the principles and techniques leading to these innovations. The practical work includes production of a model recombinant biopharmaceutical by cell culture, including downstream processing and characterization using modern techniques of analytical biotechnology including mass spectrometry. On-line bioinformatics tutorials and assignments associated with model biopharmaceuticals and other biotherapeutics are included in the practical program.

### Course aims

This course aims to present students with the background to medical problems and the technologies currently used to address them. Students will gain an insight into the scientific development and application of these new technologies as well as their limitations. The course present students with opportunities for further investigation and tests their innovative thought processes.

### Learning outcomes

Some of the skills the course will aid in developing include:

- The ability to critically evaluate scientific literature.
- The capacity for innovative and original thinking.
- Creative problem-solving
- Self-learning techniques, including independent and reflective learning
- Working in a group dynamic, refining communication skills, team management

### Major Topics (Syllabus Outline)

- Introduction to biotechnology & Medical Biotechnology
- Biopharmaceuticals and the biopharmaceutical industry.
- Cancer & Personalised Medicine
- Proteomics for the pharmaceutical industry.
- Nuclear medicine and radiopharmaceuticals.
- Tissue Engineering and Regenerative Medicine
- Wound healing & Biomaterials
- Microbial Biotechnology & Anti-Infective Agents
- Drug Discovery & Delivery

### Relationship to Other Courses within the Program

This undergraduate 3rd year course reasonably assumes a prior knowledge of biological and chemical skills as well as a degree of information literacy gained from two years of academic study.
### Teaching strategies

The underpinning concept of this course is to provide students an overview of multidisciplinary fields currently contributing to the growth of the global medical biotechnology sector. A significant portion of the material will be presented by Industry speakers covering:

- Vaccines, protein biopharmaceuticals, personalized medicine, cellular therapies, diagnosis, biopolymers
- New diagnostics
- New vehicles for drug discovery
- Alternatives to antibiotics

### Laboratories

Laboratory times will be used to develop some background knowledge in technologies that are used in Biotechnology and for support in the student’s major project assessment.

<table>
<thead>
<tr>
<th>Rationale and Strategies Underpinning the Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical biotechnology is a 3rd year undergraduate course with participants having a reasonable and requisite background in technical, investigative and literacy skills. Biotechnology is an applied science and in this course, the focus is on the application of multidisciplinary techniques to the medical field. Consequently, the course provides an overview of key areas delivered by experts in the field.</td>
</tr>
</tbody>
</table>
### Graduate Attributes Developed in this Course

| Science Graduate Attributes | Select the level of FOCUS  
|-----------------------------|-----------------------------|-----------------------------|
|                             | 0 = NO FOCUS  
|                             | 1 = MINIMAL  
|                             | 2 = MINOR  
|                             | 3 = MAJOR  
|                             | Activities / Assessment  
| Research, inquiry and analytical thinking abilities | 3 | Literature review; Laboratory report; participation in research laboratory activities.  
| Capability and motivation for intellectual development | 2 | Computer and wet laboratory practicals; written reports.  
| Ethical, social and professional understanding | 2 | The application of biotechnology to medical conditions encompasses a range of ethical and social issues, many of which will be discussed during the lectures.  
| Communication | 3 | Working in team during laboratory activities; written reports; presentation of selected laboratory project topic.  
| Teamwork, collaborative and management skills | 3 | Working in a team during laboratory activities.  
| Information literacy | 3 | Information search for literature review; development of skills in using web-based analytical tools for processing and interpretation of large biological data sets.  

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture (3-5 pm)</th>
<th>Laboratory (9am-1 pm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>July 25</td>
<td>Medical Biotechnology Course Introduction &amp; Outline – MC JW</td>
<td>No Practical (Online OGTR)</td>
</tr>
<tr>
<td>2</td>
<td>August 1</td>
<td>Monoclonal Antibodies &amp; Hybridomas - CPM</td>
<td>Overview, Inductions &amp; training</td>
</tr>
<tr>
<td>3</td>
<td>August 8</td>
<td>Cancer - KM</td>
<td>Practical Program (Design &amp; Planning)</td>
</tr>
<tr>
<td>4</td>
<td>August 15</td>
<td>Tissue Engineering &amp; Regenerative Medicine - KT</td>
<td>Hybridomas (Resuscitation &amp; Culturing)</td>
</tr>
<tr>
<td>5</td>
<td>August 22</td>
<td>Proteomics - VW</td>
<td>Hybridomas (Cell counting, viability, sample collection)</td>
</tr>
<tr>
<td>6</td>
<td>August 29</td>
<td>Proteomics in the Pharmaceutical Industry - VW (To be confirmed)</td>
<td>Affinity Purification of mAB’s</td>
</tr>
<tr>
<td>7</td>
<td>September 5</td>
<td>Radiopharmaceuticals from bench to bedside - GP</td>
<td>Immobilisation of mAB &amp; antigen precipitation</td>
</tr>
<tr>
<td>8</td>
<td>September 12</td>
<td>Polymeric nanoparticles and nanomedicine – A new generation of drugs - CB</td>
<td>Sample Preparation for Tandem Mass Spetrometry</td>
</tr>
<tr>
<td>9</td>
<td>September 19</td>
<td>Synthetic biology &amp; Medicine - MB</td>
<td>Mass Spectrometry data collation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MID SESSION BREAK</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>October 3</td>
<td>Biologics &amp; Anti-Infectives - ML</td>
<td>Mass Spectrometry results Tutorial</td>
</tr>
<tr>
<td>11</td>
<td>October 10</td>
<td>Bioprospecting and Traditional Medicines - BN</td>
<td>Report writing</td>
</tr>
<tr>
<td>12</td>
<td>October 17</td>
<td>Biomaterials for Medical Devices – KT</td>
<td>Course round up – KT JW</td>
</tr>
<tr>
<td>13</td>
<td>October 24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Lectures: Tuesdays 3-5pm Pioneer theatre AGSM  Labs: Mondays 9-11 am
## Assessment Tasks and Feedback

<table>
<thead>
<tr>
<th>Assessable Task</th>
<th>Date (Due)</th>
<th>Assessment</th>
<th>% Total Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature review: Monoclonal antibody approaches to cancer therapy.</td>
<td>1st September (Start of lab, week 6)</td>
<td>A 2,500-word review on recent approaches to cancer immunotherapy using monoclonal antibodies and their fragments.</td>
<td>20%</td>
</tr>
<tr>
<td>Laboratory notebook</td>
<td>20th October (Start of lab, week 6)</td>
<td>A detailed record of all experimental procedures, observations and results.</td>
<td>5%</td>
</tr>
<tr>
<td>Journal article</td>
<td>20th October (Start of lab, week 6)</td>
<td>A final practical laboratory report will outline all of the experimental aims, methods, results and conclusions of the practical component of the course. This will be written in the form of a journal article suitable for submission to the Journal of Immunology.</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Exam Period (held in S2 exam period)</td>
<td>The final exam will cover the lecture component of the course. The exam format will most likely consist of four essay style questions to be completed within 2 hours.</td>
<td>50%</td>
</tr>
</tbody>
</table>
## Special Consideration and Further Assessment

<table>
<thead>
<tr>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students who believe that their performance, either during the session or in the end of session exams, may have been affected by illness or other circumstances may apply for special consideration. Applications can be made for compulsory class absences such as (laboratories and tutorials), in-session assessments tasks, and final examinations. Students must make a formal application for Special Consideration for the course/s affected as soon as practicable after the problem occurs and within three working days of the assessment to which it refers. Students should consult the A-Z section of the “Student Guide 2013”, particularly the section on “Special Consideration”, for further information about general rules covering examinations, assessment, special consideration and other related matters. This is information is published free in your UNSW Student Diary and is also available on the web at: my.unsw.edu.au/student/atoz/SpecialConsideration.html.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How to apply for special consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications must be made via Online Services in myUNSW. You must obtain and attach supporting documentation before submitting the application. Log into myUNSW and go to My Student Profile tab &gt; My Student Services channel &gt; Online Services &gt; Special Consideration. After applying online, students must also verify supporting their documentation by submitting to UNSW Student Central:</td>
</tr>
<tr>
<td>• Originals or certified copies of your supporting documentation (Student Central can certify your original documents), and</td>
</tr>
<tr>
<td>• A completed Professional Authority form (pdf - download here). The supporting documentation must be submitted to Student Central for verification within three working days of the assessment or the period covered by the supporting documentation. Applications which are not verified will be rejected. Students will be contacted via the online special consideration system as to the outcome of their application. Students will be notified via their official university email once an outcome has been recorded.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supplementary examinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further assessment exams may be given to those students who were absent from the final exams through illness or misadventure. Special Consideration applications for final examinations will only be considered after the final examination period when lists of students sitting supplementary exams/tests for each course are determined at School Assessment Review Group Meetings. Students will be notified via the online special consideration system as to the outcome of their application. It is the responsibility of all students to regularly consult their official student email accounts and myUNSW in order to ascertain whether or not they have been granted further assessment. Further assessment exams will be offered on this day only and failure to sit for the appropriate exam may result in an overall failure for the course. Further assessment will not be offered on any alternative dates.</td>
</tr>
</tbody>
</table>
### Administration Matters

#### Expectations of Students
- A pass in BABS3061 is conditional upon a satisfactory performance in the practical program.
- A satisfactory performance means that you have:
  - Attended 80% of the practical classes (an attendance record is kept)
  - Attended 80% of the Lectures (an attendance record is kept)
  - Maintained an accurate and up-to-date workbook and laboratory manual, including the recording of all data and completion of calculations and questions.
  - Satisfactorily submitted all assigned work

#### Assignment Submissions
- Requirements vary with each assigned task. Your tutor will advise accordingly.

#### Occupational Health and Safety
- Information on relevant Health and Safety policies and expectations at UNSW: [http://www.hr.unsw.edu.au/ohswc/ohswc_home.html](http://www.hr.unsw.edu.au/ohswc/ohswc_home.html).
- Biochemical laboratories contain apparatus and chemicals that are potentially dangerous when misused or handled carelessly. Consequently, safe experimental procedures and responsible conduct in the laboratory are essential at all times. The regulations governing conduct in the laboratory have been set down by the NSW Occupational Health & Safety (Hazardous Substances) Regulation 1996, NSW Draft OHS Regulation 2000, and the NSW Workcover Publications and Worksafe National Codes of Practice and Guidance Notes. These policies apply to all university staff and students. Students are responsible for:
  - Complying with the requirements of this policy, legislation and Australian Standards.
  - Following directions given to them by the person supervising their work.
  - Co-operating in the performance of risk assessments.
  - Participating in induction and training programs.

  **ALL ACCIDENTS WITH CHEMICALS OR INJURIES MUST BE REPORTED IMMEDIATELY TO YOUR DEMONSTRATOR OR TO A MEMBER OF THE PREPARATION ROOM STAFF.**

#### Equity and Diversity
- Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course Convenor prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or [http://www.studentequity.unsw.edu.au](http://www.studentequity.unsw.edu.au) or [http://www.equity.unsw.edu.au/disabil.html](http://www.equity.unsw.edu.au/disabil.html)).
- Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made. Information on designing courses and course outlines that take into account the needs of students with disabilities can be found at: [www.secretariat.unsw.edu.au/acb/committee/minutes/coe/disabilityguidelines.pdf](http://www.secretariat.unsw.edu.au/acb/committee/minutes/coe/disabilityguidelines.pdf)

#### Student support officer
- John Wilson
  - [j.e.wilson@unsw.edu.au](mailto:j.e.wilson@unsw.edu.au)
  - Tel: 9385 1748
  - BSB Student office G27 Bioscience building
| Student complaint procedure | School Contact | A/Prof. Louise Lutz-mann  
|  |  | l.lutze-mann@unsw.edu.au  
|  |  | Tel: 9385 2024  
| Faculty Contact | A/Prof Julian Cox  
|  |  | Associate Dean (Education)  
|  |  | julian.cox@unsw.edu.au  
|  |  | Tel: 9385 8574  
| University Contact | Student Conduct and Appeals Officer (SCAO) within the Office of the Pro-Vice-Chancellor (Students) and Registrar.  
|  |  | Tel: 02 9385 8515  
|  |  | studentcomplaints@unsw.edu.au  

### Additional Resources and Support

| Text Books | Due to the broad range of topics covered in Medical Biotechnology, there is no single textbook that encompasses everything. Additional materials or links to scientific literature will be provided by individual lecturers. The following is a good source of background information to accompany the lectures. It is available for purchase from the UNSW Bookstore:  
|  | Medical Biotechnology  
|  | Authors: Bernard R. Glick, Terry L. Delovitch, Cheryl L. Patten  
| Course Manual | A course manual be made available to the students in print and via Moodle. (This document)  
| Recommended Internet Sites | PubMed is a very useful way to access peer-reviewed scientific literature: http://www.ncbi.nlm.nih.gov/pubmed  
| Societies | AusBiotech strongly recommended. Student memberships available. See http://www.ausbiotech.org/  
| Computer Laboratories or Study Spaces | A separate computer lab is available for the use of the students and some limited computing facilities.  
| Library | It is highly recommended that you do a library tour to become familiar with all the resources that the library has to offer.  
|  | Enter at the doors opposite the Library Lawn or via the shopping arcade.  
|  | Photocopying. Purchase copy cards on the ground floor of the main building. The room is past an information desk on your right as you enter. It costs $2 to purchase the card and then you add value to the card to whatever amount you want. The cards are debit cards, so every time you use the card it subtracts the cost (like a phone card). Remember if you lose the card someone else can also use it, so do not put too much money in it. Photocopiers are located on most levels of the library.  
|  | All regular loans for 4 weeks. Books in high demand can only be
borrowed for three days. Journals may not be borrowed. Interlibrary loans and journal articles are available for postgraduates. You will be fined for not returning books (and other material on loan) on time. If you do not pay your fines you will not be allowed to graduate.

P3 printing service on the lower ground floor of the Mathews Building for special photocopying needs such as colour photocopying.

See [http://info.library.unsw.edu.au/Welcome.html](http://info.library.unsw.edu.au/Welcome.html)

<table>
<thead>
<tr>
<th>The Learning Centre (www lc.unsw.edu.au)</th>
<th>The Learning Centre is located at two locations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room 231, Level 2, Library Building. (enter through the doors facing the Library Lawn and turn left).</td>
<td>The Independent Learning Centre Hut G23 (Between the Mathews Building and the Upper Campus Parking Station).</td>
</tr>
<tr>
<td>Phone: 02 9385 3890</td>
<td>Phone: 02 9385 2060</td>
</tr>
<tr>
<td>Email enquiries: <a href="mailto:l.puni@unsw.edu.au">l.puni@unsw.edu.au</a></td>
<td>Email enquiries: <a href="mailto:tilc@unsw.edu.au">tilc@unsw.edu.au</a></td>
</tr>
</tbody>
</table>

The Learning Centre can help you with a whole variety of problems you may face during your time here at UNSW. For example how to:

- Write a literature review
- Write a good University standard essay
- Write a report
- Improve your writing
- Improve your listening skills
- Improve your grammar
- Find resource material
- Study effectively
- Doing exams – techniques and tips
- Time management
- Referencing
- Exam preparation
- Seminar presentation
- Reading
- Note-taking

**Required Equipment for this**

Personal protection equipment (PPE) such as enclosed shoes, safety glasses and lab coat will be required for the practical sessions. This will be discussed in the introduction to laboratory safety in week 2.

**Training and Enabling Skills for this course**

It is expected that all students will have had a basic Health & Safety training prior to the practical sessions. Training within the course will provide students with the necessary qualifications and knowledge to work within a certified OGTR PC2 accredited laboratory.
SPECIAL CONSIDERATION AND FURTHER ASSESSMENT SEMESTER 2 2017

Students who believe that their performance, either during the session or in the end of session exams, may have been affected by illness or other circumstances may apply for special consideration. Applications can be made for compulsory class absences such as (laboratories and tutorials), in-session assessments tasks, and final examinations. **Students must make a formal application for Special Consideration** for the course/s affected as soon as practicable after the problem occurs and **within three working days of the assessment to which it refers**.

Students should consult the “Special Consideration” section of Moodle for specific instructions related to each BABS course they are studying. Further general information on special consideration can also be found at [https://student.unsw.edu.au/special-consideration](https://student.unsw.edu.au/special-consideration).

HOW TO APPLY FOR SPECIAL CONSIDERATION

Applications must be made via Online Services in myUNSW. **You must obtain and attach Third Party documentation before submitting the application. Failure to do so will result in the application being rejected.** Log into myUNSW and go to My Student Profile tab > My Student Services channel > Online Services > Special Consideration. After applying online, students must also verify supporting their documentation by submitting to [UNSW Student Central](https):

- Originals or certified copies of your [supporting documentation](https) (Student Central can certify your original documents), and
- A completed [Professional Authority form](https) (pdf - download here).

The supporting documentation must be submitted to Student Central for verification **within three working days** of the assessment or the period covered by the supporting documentation. Applications which are not verified will be rejected.

Students will be contacted via the online special consideration system as to the outcome of their application. Students will be notified via their official university email once an outcome has been recorded.
SUPPLEMENTARY EXAMINATIONS:
The University does not give deferred examinations. However, further assessment exams may be given to those students who were absent from the final exams through illness or misadventure. Special Consideration applications for final examinations and in-session tests will only be considered after the final examination period when lists of students sitting supplementary exams/tests for each course are determined at School Assessment Review Group Meetings. Students will be notified via the online special consideration system as to the outcome of their application. It is the responsibility of all students to regularly consult their official student email accounts and myUNSW in order to ascertain whether or not they have been granted further assessment.

Further assessment exams will be offered on this day ONLY and failure to sit for the appropriate exam may result in an overall failure for the course. Further assessment will NOT be offered on any alternative dates.

For Semester 2 2017, BABS Supplementary Exams will be scheduled on:
4th - 8th of December 2017
## Academic honesty and plagiarism

Plagiarism is the presentation of the thoughts or work of another as one’s own. **Examples include:**

- Direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person’s assignment without appropriate acknowledgement.
- Paraphrasing another person’s work with very minor changes keeping the meaning, form and/or progression of ideas of the original.
- Piecing together sections of the work of others into a new whole.
- Presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor.
- Claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.
- Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.
- The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does **not** amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms. The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at: [www.lc.unsw.edu.au/plagiarism](http://www.lc.unsw.edu.au/plagiarism)

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- Correct referencing practices.
- Paraphrasing, summarizing, essay writing, and time management.
- Appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.
<table>
<thead>
<tr>
<th>Task</th>
<th>Knowledge &amp; abilities assessed</th>
<th>Assessment Criteria</th>
<th>% of total mark</th>
<th>Date of</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Release</td>
<td>Submission</td>
</tr>
<tr>
<td>Literature review: Monoclonal antibody approaches to cancer therapy.</td>
<td>Understanding of various biotechnology disciplines covered in the course. Analytical skills. Research and communication skills.</td>
<td>See below</td>
<td>20%</td>
<td>Week 2</td>
<td>Week 6 29th August (3pm-Online turnitin + Hard copy during lab class)</td>
</tr>
<tr>
<td>Laboratory notebook</td>
<td>Research and communication skills</td>
<td>See below</td>
<td>5%</td>
<td>Week 2</td>
<td>Week 12 20th October (3-5 pm during laboratory class)</td>
</tr>
<tr>
<td>Journal article</td>
<td>Communication skills Analytical skills Research skills</td>
<td>See below</td>
<td>25%</td>
<td>Week 2</td>
<td>Week 12 20th October (3pm-Online turnitin + Hard copy during lab class)</td>
</tr>
</tbody>
</table>
Literature Review (20%)

The literature review will focus on monoclonal antibodies and cancer immunotherapy.

1. Abstract: 150 words maximum.
2. Give a brief introduction to cancer immunotherapy. Describe how this approach to cancer treatment differs from traditional approaches such as chemotherapy and radiotherapy.
3. Provide a brief introduction to monoclonal antibodies.
4. Describe the different strategies for using monoclonal antibodies and their fragments in cancer therapy.
5. Select 2 recent approaches which employ monoclonal antibodies for cancer therapy and describe the mechanism and rationale for each approach.
6. For each approach, provide a critical evaluation. What are the benefits of this technology over existing therapeutic strategies?
7. Do you see any disadvantages for the new approach?
8. Provide references throughout to justify your reasoning.

Laboratory Notebook (5%)

Keeping accurate and sufficiently detailed notes in the laboratory is an essential skill in research. These notes are the primary source of information that will be used to publish a scientific paper. As such, you will be required to keep notes of all aspects of the practical throughout session.

Journal Article (25%)

Abstract (2%)
Introduction (4%)
Materials and methods (1%)
Results (8%)
Discussion (8%)
References (2%)

The journal article should be written following the instructions for authors such that it would be suitable for submission directly to the Journal of Immunology. The instructions to authors can be accessed via the following website:
http://jimmunol.org/site/misc/authorinstructions.xhtml

You should follow the instructions very carefully. Marks will be deducted where appropriate for failing to adhere to the guidelines for font, spacing, references format and all other aspects.
Lodgment
All written work should be submitted through the assignment drop-box outside the BABS Student Office. It is essential that the code and name of the course be clearly indicated on the coversheet. Work with an incorrectly filled-out coversheet may not be marked.

All reports are to be accompanied by an electronic copy at the time of submission (if you are not using MS Word, submit your work as a PDF file or in Rich Text Format, RTF).

Late Submission
If your work is submitted after a specified submission deadline, the work may or may not be marked, at the discretion of the course convener. Similarly, there may or may not be a penalty, again at the discretion of the course coordinator.

STUDENT NO: ................................
SURNAME: ..................................GIVEN NAMES: .................................
Email: ...........................................    PHONE NO: .................................

COURSE CODE: .................... COURSE NAME: ........................................

ASSIGNMENT
TITLE:...........................................................................................................

DUE DATE:....../....../......

ACADEMIC/Demonstrator:........................................................................

I declare that this assessment item is my own work, except where acknowledged, and has not been submitted for academic credit elsewhere, and acknowledge that the assessor of this item may, for the purpose of assessing this item:

• Reproduce this assessment item and provide a copy to another member of the University; and/or,

• Communicate a copy of this assessment item to a plagiarism checking service (which may then retain a copy of the assessment item on its database for the purpose of future plagiarism checking.)

I certify that I have read and understood the University Rules in respect of Student Academic Misconduct.

Signature:...........................................    Date: .................................


Please note: You must sign the coversheet and so agree with the statement. Unsigned work may not be marked.