PATH3210
Visualising Disease

Course Outline
Term 1, 2022

School of Medical Sciences
Faculty of Medicine & Health
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## 1. Staff

<table>
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<tr>
<th>Position</th>
<th>Name</th>
<th>Email</th>
<th>Consultation times and locations</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Convenor</td>
<td>Professor Peter Gunning</td>
<td><a href="mailto:p.gunning@unsw.edu.au">p.gunning@unsw.edu.au</a></td>
<td>By appointment Virtual or C25 Rm 229</td>
<td>Email, TEAMS or +61 (2) 90655654</td>
</tr>
<tr>
<td>Course Convenor</td>
<td>Professor Edna Hardeman</td>
<td><a href="mailto:e.hardeman@unsw.edu.au">e.hardeman@unsw.edu.au</a></td>
<td>By appointment Virtual or C25 Rm 227</td>
<td>Email, TEAMS or +61 (2) 90659653</td>
</tr>
<tr>
<td>Course Convenor</td>
<td>Dr Renee Whan</td>
<td><a href="mailto:r.whan@unsw.edu.au">r.whan@unsw.edu.au</a></td>
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</tr>
<tr>
<td>Course Co-Convenor</td>
<td>A/Professor Cristan Herbert</td>
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<td>By appointment Virtual</td>
<td>Email or TEAMS.</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Dr John Lock</td>
<td><a href="mailto:j.lock@unsw.edu.au">j.lock@unsw.edu.au</a></td>
<td>By appointment Virtual</td>
<td>Email or TEAMS.</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Professor Daniel Moses</td>
<td><a href="mailto:d.moses@unsw.edu.au">d.moses@unsw.edu.au</a></td>
<td>Email or TEAMS.</td>
<td>Email or TEAMS</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Dr Michael Carnell</td>
<td><a href="mailto:m.carnell@unsw.edu.au">m.carnell@unsw.edu.au</a></td>
<td>Email or TEAMS.</td>
<td>Email or TEAMS</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Dr Sandra Fok</td>
<td><a href="mailto:sandra.fok@unsw.edu.au">sandra.fok@unsw.edu.au</a></td>
<td>By appointment Virtual</td>
<td>Email or TEAMS.</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Dr Joanna Richmond</td>
<td><a href="mailto:joanna.richmond@unsw.edu.au">joanna.richmond@unsw.edu.au</a></td>
<td>By appointment Virtual</td>
<td>Email or TEAMS.</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Dr Alex Macmillan</td>
<td><a href="mailto:a.macmillan@unsw.edu.au">a.macmillan@unsw.edu.au</a></td>
<td>Email or TEAMS.</td>
<td>Email or TEAMS</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Dr Elvis Pandzic</td>
<td><a href="mailto:e.pandzic@unsw.edu.au">e.pandzic@unsw.edu.au</a></td>
<td>Email or TEAMS.</td>
<td>Email or TEAMS</td>
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</tbody>
</table>
2. Course information

Units of credit: 6

Prerequisite(s): 72 UOC including one of these courses: ANAT2111/1521/2241/2521/2341/2511, BABS2011/2202/2204, BIOC2181/2101, MICR2011, NEUR2201, PATH2201, PHAR2011, PHSL2101/2121/2201/2221, CHEM2041, NANO2002

Teaching times and locations:

http://www.timetable.unsw.edu.au/2022/PATH3210.html

Lectures - Tuesday 10.00-11.00 and Friday 9.00-10.00 - ONLINE
TUT/PRACS- Tuesday 16.00-18.00 and Friday 11.00 –13.00 – K-Wallace Wurth G17 Hybrid Lab

2.1 Course summary

PATH 3210 will provide you with an understanding of how different imaging techniques work and how to apply them to obtain multidimensional data about disease processes. You will gain insight into how images are formed and processed for analysis, and in turn how to critically evaluate the quality of an imaging experiment. Key topics that will be covered include sample preparation, effective use of imaging instruments, the use of artificial intelligence for segmentation and how to obtain quantitative data from imaging experiments.

Building on this knowledge we explore how to apply imaging technologies for fundamental biomedical research and within the clinical environment. Collectively this provides a solid basis for future careers in biomedical imaging in research, the clinic or in industry. This course is a revised version of a previous course coded as ANAT3212.

2.2 Course aims

There are four key aims of the course.

1. Be able to identify the strengths and limitations of key imaging techniques that can be employed to study, diagnose and treat diseases.
2. Be able to design an imaging experiment to evaluate a hypothesis.
3. Develop skills to critically analyse and quantify disease processes from images generated by different imaging modalities.
4. Develop oral and written communications skills that underpin the dissemination of research using imaging.

2.3 Course learning outcomes (CLO)

At the successful completion of this course you (the student) should be able to:

1. Critically evaluate the use of an imaging technique to obtain data on a disease-associated process.
2. Process images to obtain quantitative data about an object of interest.
3. Interpret images and assess the quality of imaging data.
4. Communicate concepts of microscopy and biomedical imaging used by researchers and clinicians.
2.4 Relationship between course and program learning outcomes and assessments

<table>
<thead>
<tr>
<th>Course Learning Outcome (CLO)</th>
<th>LO Statement</th>
<th>Related Tasks &amp; Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLO 1</td>
<td>Critically evaluate the use of an imaging technique to obtain data on a disease-associated process.</td>
<td>Assessments 1, 2, 3, 4</td>
</tr>
<tr>
<td>CLO 2</td>
<td>Process images to obtain quantitative data about an object of interest.</td>
<td>Assessments 1, 2, 3, 4</td>
</tr>
<tr>
<td>CLO 3</td>
<td>Interpret images and assess the quality of imaging data.</td>
<td>Assessments 1, 2, 3, 4</td>
</tr>
<tr>
<td>CLO 4</td>
<td>Communicate concepts of microscopy and biomedical imaging used by researchers and clinicians.</td>
<td>Assessments 2, 3, 4</td>
</tr>
</tbody>
</table>

3. Strategies and approaches to learning

3.1 Learning and teaching activities

The course content will be delivered using the following format

1. Lectures - These will be delivered online by researchers and clinicians with an active profile in imaging and cancer. Additionally, guest lectures from industry will be brought in to discuss imaging careers within their professions. The lectures will be grouped in themes to provide a learning trajectory of the concepts. Additionality, how the themes relate to each other will be provided through concept maps at the beginning and end of the course. Generally, a single theme will run for a one-week period with the first lecture outlining the basic concepts and the second applying these concepts to given problems that may include some of the personal research of the lecturer.

2. Tutorials – will be held face to face where possible. These will provide an opportunity to examine specific imaging techniques and how they can be applied to a given lecture theme. Each presentation will be followed by a series of collaborative peer discussions or activities (including virtual activities) to reinforce concepts.

3. Practicals - will be held face to face where possible. Students will be split into groups to perform tasks - from conducting imaging through to analysing and interpreting data. These practicals will be carried out sequentially following the lecture series and seminar. Here they will interact with researchers, technical staff and industry representatives.

4. Learning is supported via Moodle and Microsoft TEAMS, where announcements, timetable, lecture slides and other resources will be made available.
3.2 Expectations of students

Students are reminded that UNSW recommends that a 6 units-of-credit course should involve about 150 hours of study and learning activities. The formal learning activities total approximately 56 hours throughout the term and students are expected (and strongly recommended) to do at least 94 additional study and work on their assessments.

Specific to PATH3210, we have the following expectations of students

1. You will participate in peer assessment in the oral presentation assessment

2. You will attend and engage in discussion in tutorials and practicals

3. For practicals in weeks 2, 3 and 7 you will need to wear close toed shoes and have long hair tied back.

4. You will attend the online lectures where possible and ask questions either in person with your video on or via messaging.

5. When emailing or contacting a lecturer/lead you will state your name and zID. Please allow 48 hours for a response.

6. All communication will be courteous and abide by the UNSW code of conduct. 
4. Course schedule and structure

This course consists of 56 hours of class contact hours. You are expected to take an additional 94 hours of non-class contact hours to complete assessments, readings and exam preparation.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Lecturer/ Leads</th>
<th>Venue</th>
</tr>
</thead>
</table>
| **Week 1**  
Tuesday 15/2  
10.00-11.00 | Lecture 1: Introduction - Overview of course and abrief in cell biology | Peter Gunning, Edna Hardeman and Renee Whan | Online-TEAMS |
| | Tuesday 15/2  
16.00-18.00 | Tutorial 1: Overview of microscopy techniques | Michael Carnell | WW G16/17 |
| | Friday 18/2  
9:00-10.00 | Lecture 2: Visualising Disease | Peter Gunning, Edna Hardeman | Online-TEAMS |
| | Friday 18/2  
11.00-13.00 | Tutorial 2: Fluorescence Microscopy | Renee Whan | WW G16/17 |
| **Week 2**  
Tuesday 22/2  
10.00-11.00 | Lecture 3: Specimen preparation for Light Microscopy | Renee Whan | Online-TEAMS |
| | Tuesday 22/2  
16.00-18.00 | Practical 1: Labelling cancer cells and QUIZ 1 | Renee Whan | WW G16/17 |
| | Friday 25/3  
9:00-10.00 | Lecture 4: Electron Microscopy | Joanna Richmond | Online-TEAMS |
| | Friday 25/3  
11.00-13.00 | Practical 2: virtual/visit electron microscopy | Joanna Richmond | WW G16/17 |
| **Week 3**  
Tuesday 1/3  
10.00-11.00 | Lecture 5: What makes up an image? | Michael Carnell | Online-TEAMS |
| | Tuesday 1/3  
16.00-18.00 | Practical 3: Processing and Analysing Data and QUIZ 2 | Michael Carnell | WW G16/17 |
| | Friday 4/3  
9:00-10.00 | Lecture 6: Confocal microscopy | Renee Whan | Online-TEAMS |
| | Friday 4/3  
11.00-13.00 | Practical 4: Myscope virtual microscopy and or Using confocals | Sandra Fok, Michael Carnell | WW G16/17 and *KGLMF |
| **Week 4**  
Tuesday 8/3  
10.00-11.00 | Lecture 7: Co-localisation | Michael Carnell | Online-TEAMS |
| | Tuesday 8/3  
16.00-18.00 | Practical 5: Image Analysis and QUIZ 3 | Michael Carnell | WW G16/17 |
| | Friday 11/3  
9:00-10.00 | Lecture 8: Requirements for live cell imaging | Sandra Fok | Online-TEAMS |
<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tbody>
<tr>
<td>Friday</td>
<td>11/3</td>
<td>11.00-13.00</td>
<td>Tutorial 3: Imaging cell division, migration and drug distribution and accumulation</td>
<td>John Lock, Peter Gunning and Edna Hardeman</td>
<td>WW G16/17</td>
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</table>

**Week 5**

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<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tbody>
<tr>
<td>Tuesday 15/3</td>
<td>10.00-11.00</td>
<td>Lecture 9: Intravital imaging of cancer growth and movement</td>
<td>Peter Gunning Edna Hardeman</td>
<td>Online-TEAMS</td>
</tr>
<tr>
<td>Tuesday 15/3</td>
<td>16.00-18.00</td>
<td>Tutorial 4: Microscopy of metastasis - which dimension?</td>
<td>Peter Gunning Edna Hardeman</td>
<td>WW G16/17</td>
</tr>
<tr>
<td>Friday 18/3</td>
<td>9:00-10.00</td>
<td>Lecture 10: Multiplex labelling and systems approaches</td>
<td>John Lock</td>
<td>Online-TEAMS</td>
</tr>
<tr>
<td>Friday 18/3</td>
<td>11.00-13.00</td>
<td>Practical 6: The use of AI in image analysis and QUIZ 4</td>
<td>John Lock</td>
<td>WW G16/17</td>
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**Week 7**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tbody>
<tr>
<td>Tuesday 29/3</td>
<td>10.00-11.00</td>
<td>Lecture 11: Advanced microscopy techniques 1</td>
<td>Alex Macmillan</td>
<td>Online-TEAMS</td>
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<tr>
<td>Tuesday 29/3</td>
<td>16.00-18.00</td>
<td>Group assessment – Oral Presentations</td>
<td>Peter Gunning, Edna Hardeman, Renee Whan</td>
<td>WW G16/17</td>
</tr>
<tr>
<td>Friday 1/4</td>
<td>9:00-10.00</td>
<td>Lecture 12: Advanced microscopy techniques 2</td>
<td>Elvis Pandzic</td>
<td>Online-TEAMS</td>
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<tr>
<td>Friday 1/4</td>
<td>11.00-13.00</td>
<td>Practical 7: Advanced Microscopy</td>
<td>Alex Macmillan Elvis Pandzic</td>
<td>WW G16/17      and *KGLMF</td>
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**Week 8**

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<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tbody>
<tr>
<td>Tuesday 5/4</td>
<td>10.00-11.00</td>
<td>Lecture 13: Overview of medical Imaging techniques Part 1</td>
<td>Daniel Moses</td>
<td>Online-TEAMS</td>
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<tr>
<td>Tuesday 5/4</td>
<td>16.00-18.00</td>
<td>Tutorial 5: How to image a patient</td>
<td>Daniel Moses</td>
<td>WW G16/17</td>
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<tr>
<td>Friday 8/4</td>
<td>9:00-10.00</td>
<td>Lecture 14 Overview of medical imaging techniques Part 2</td>
<td>Daniel Moses</td>
<td>Online-TEAMS</td>
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<tr>
<td>Friday 8/4</td>
<td>11.00-13.00</td>
<td>Practical 8: Diagnosing patients using imaging</td>
<td>Daniel Moses</td>
<td>WW G16/17</td>
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**Week 9**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
<th>Location</th>
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<tbody>
<tr>
<td>Tuesday 12/4</td>
<td>10.00-11.00</td>
<td>Lecture 15: Functional Clinical Imaging</td>
<td>Daniel Moses</td>
<td>Online-TEAMS</td>
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<tr>
<td>Tuesday 12/4</td>
<td>16.00-18.00</td>
<td>Tutorial 6: Interpreting clinical data and QUIZ 5</td>
<td>Daniel Moses</td>
<td>WW G16/17</td>
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**Week 10**

<table>
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<tr>
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<tr>
<td>Tuesday 19/4</td>
<td>10.00-11.00</td>
<td>Lecture 16: Image Guided Therapy</td>
<td>Daniel Moses</td>
<td>Online-TEAMS</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
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</tr>
<tr>
<td>Tuesday 19/4</td>
<td>16.00-18.00</td>
<td>Tutorial 7: Career Development: Q and A with panel of researchers, industry representatives and clinicians.</td>
<td>Peter Gunning, Edna Hardeman, and Renee Whan</td>
<td>WW G16/17</td>
</tr>
<tr>
<td>Friday 22/4</td>
<td>9:00-10.00</td>
<td>Lecture 17: Personalised Medicine – Emerging imaging approaches for treatment</td>
<td>Peter Gunning</td>
<td>Online-TEAMS</td>
</tr>
<tr>
<td>Friday 22/4</td>
<td>11.00-13.00</td>
<td>Tutorial 8: Course Revision</td>
<td>Peter Gunning, Edna Hardeman, Renee Whan, Michael Carnell, Daniel Moses and John Lock</td>
<td>WW G16/17</td>
</tr>
</tbody>
</table>

*KGLMF- Katharina Gaus Light Microscopy Facility
Exam Period: 29 April – 12 May
Supplementary Exam Period: 23 May – 27 May
5. Assessment

5.1 Assessment tasks

<table>
<thead>
<tr>
<th>Assessment task</th>
<th>Length</th>
<th>Weight</th>
<th>Due date and time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment 1: Quizzes</strong></td>
<td>10 min</td>
<td>10%</td>
<td>Weeks 2, 3, 4, 5 and 9</td>
</tr>
<tr>
<td>- Where the best 4 out of 5 contribute to mark</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Assessment 2: Oral Presentation</strong></td>
<td>8 minutes</td>
<td>20%</td>
<td>Week 7</td>
</tr>
<tr>
<td>- Literature Research - GROUP</td>
<td></td>
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</tr>
<tr>
<td><strong>Assessment 3: Written report</strong></td>
<td>1500 words</td>
<td>30%</td>
<td>Week 9</td>
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<tr>
<td>- Literature Research - Individual</td>
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<tr>
<td><strong>Assessment 4: Exam</strong></td>
<td>2 hours</td>
<td>40%</td>
<td>Exam Period</td>
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</table>

5.2 Assessment tasks details

5.2.1 Quizzes

Team and individual quizzes will be held in the tutorial/practical sessions, consisting of MCQs. The quizzes are intended to allow you to review information from the lectures and practicals, in addition to allowing feedback and revision of topics. Students need to provide a reason to Professor Gunning for a missed quiz via email. There will be 5 quizzes of which the four top marks will contribute to the overall assessment percentage. The quizzes will be held in the tutorial/prac sessions in the timetable on Moodle in Weeks 2, 3, 4, 5 and 9 as noted in the timetable.

5.2.2 Analysis of a Research Paper

You will be provided with a list of 10 papers which can be found via LEGANTO on Moodle at the end of week 1. Papers include imaging methods that have been used to examine a disease, including:

I. Multi-labelling immunofluorescence
II. Confocal Microscopy and Live cell imaging
III. Image Analysis
IV. Medical Imaging

Provide your first three preferences for the journal articles to the convenors by the end of week 2 via Moodle. Note that only 2 students per article will be permitted. You will receive a confirmation at the beginning of week 3 as to the research paper that forms the basis of your assessment.

**Purpose:** To critically evaluate the imaging method used in the paper and address the following questions:
1. Justify the imaging methods chosen to answer the researcher’s question?
2. What could be modified to this imaging approach to visualise the disease in question?
3. Predict the outcome of your modification to the imaging method?

5.2.2.1 Group Presentation
You will present your findings to the group and a panel of examiners. The presentation will be 8 minutes. 
All students are expected to complete a peer assessment feedback form for a fellow student. This will be randomly delegated by the examiners at the time of the presentations. Marks will be based on the quality of the feedback provided.

NOTE: The contribution of the peer assessment is worth 25% of the Research Paper Presentation. The examiners assessment is worth 75% of the Research Paper Presentation for a total of 20% of your overall mark.

The presentation will be assessed by your peers and the examiners according to the following criteria:
1. CLARITY AND STRUCTURE: Oral presentation was clear, well-structured and easily understood.
2. TIMING: Timing was controlled so that most aspects were covered.
3. UNDERSTANDING and EVALUATION: Presenter appeared to have an excellent understanding of the topic, provided a robust evaluation and were able to justify their approach.
4. STIMULATED LEARNING: The presenters were able to compose suitable responses to questions, generated an interesting talk and that engaged the audience

Presentations will be in week 7 in the scheduled class times shown in the timetable.

5.2.2.2 Written Report
Your individual written report (30%) should be 1500 words maximum in length excluding references. Insert relevant images and diagrams to support your evaluation of the paper.

The Due Date is THURSDAY 14th April (the end of week 9) NO LATER THAN 6 pm. Assignments are to be submitted via Moodle.

For all submitted reports should clearly state your Name and Student number

5.2.3. Exam
During the exam period, an ‘open book’ 2-hour exam (40%) will be held in the form of multiple choice and short answers online via the Inspera platform (further details will be provided via Moodle). It will cover material presented in both lectures and practical classes.

You will be given a series of questions to answer, and examples of questions will provided to students prior to the exam.
A supplementary may be scheduled for special consideration. Please liaise with the course convenors.
Further information
UNSW grading system: https://student.unsw.edu.au/grades
UNSW assessment policy: https://student.unsw.edu.au/assessment

5.3 Assessment criteria and standards
The rubrics for the assessment tasks can be found on the Moodle page of this course.

5.4 Submission of assessment tasks
Students should submit all assessments.

For assessment task 1 (quizzes 10%), these will be submitted and conducted online on Moodle in the designated timetable slot. Should you miss one of these quizzes, please contact Renee Whan.

For assessment task 2 (group oral presentation 20%) will be conducted in-front of the class in Week 7 in the session noted in the timetable. Peer assessment will also be conducted in the session and the marked rubrics will be handed to the convenors at the end of each talk. Should you be unable to attend the presentation please contact Renee Whan. (please see special consideration below)

For assessment task 3 (written report 30%) –reports should be in a PDF format and submitted via Moodle prior to the 14th April 6pm. The report should note your Name and zID. Should you submit late the below penalization will apply without special consideration.

For assessment task 4 (exam- 40%)- will conducted in Inspera Platform at a date to be provided in Moodle. A supplementary exam may be available for those who apply for Special Consideration in the week 23-27 May.

Late Submission
Late submissions will be penalized at 5% per day capped at five days (120 hours). Students will not be permitted to submit their assessments after this date.

Special Consideration
If you experience a short-term event beyond your control (exceptional circumstances) that impacts your performance in a particular assessment task, you can apply for Special Considerations.

You must apply for Special Consideration before the start of your exam or due date for your assessment, except where your circumstances of illness or misadventure stop you from doing so.

If your circumstances stop you from applying before your exam or assessment due date, you must apply within 3 working days of the assessment, or the period covered by your supporting documentation.

More information can be found on the Special Consideration website.

5.5. Feedback on assessment
Feedback on your assessments will be provided in multiple ways.

- For the Quizzes, you will be provided will real-time feedback upon completing the quiz and you will also be contacted on Moodle for discussion.
For the presentations you will be provided with Feedback from you’re Peers and Lecturers at the end of your talk.

For your reports you will be given individual written feedback two weeks following submission.

For the exam, you will be provided with practise questions which you can gain insight into how the questions are marked and what can be improved in the final session in the timetable or by appointment.

6. Academic integrity, referencing and plagiarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else’s words, ideas or research. Not referencing other people’s work can constitute plagiarism.

Please use Vancouver referencing style for this course. https://www.ncbi.nlm.nih.gov/books/NBK7256/

Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.¹ At UNSW, this means that your work must be your own, and others’ ideas should be appropriately acknowledged. If you don’t follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and plagiarism can be located at:

- The Current Students site https://student.unsw.edu.au/plagiarism, and
- The ELISE training site http://subjectguides.library.unsw.edu.au/elise/presenting

The Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct.

7. Readings and resources

c. https://www.thermofisher.com/order/fluorescence-spectraviewer#/!
d. http://zeiss-campus.magnet.fsu.edu/

8. Administrative matters
Student enquiries should be submitted via student portal https://portal.insight.unsw.edu.au/web-forms/

9. Additional support for students
- The Current Students Gateway: https://student.unsw.edu.au/
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student Wellbeing and Health https://www.student.unsw.edu.au/wellbeing
- UNSW IT Service Centre: https://www.myit.unsw.edu.au/services/students
- UNSW Student Life Hub: https://student.unsw.edu.au/hub#main-content
- Student Support and Development: https://student.unsw.edu.au/support
- IT, eLearning and Apps: https://student.unsw.edu.au/elearning
- Student Support and Success Advisors: https://student.unsw.edu.au/advisors
- Equitable Learning Services (Formerly Disability Support Unit): https://student.unsw.edu.au/els
- Transitioning to Online Learning https://www.covid19studyonline.unsw.edu.au/
- Guide to Online Study https://student.unsw.edu.au/online-study