Faculty of Medicine
School of Medical Sciences

PATH3206

Cancer Pathology

COURSE OUTLINE

SEMESTER I, 2017

CRICOS Provider Code 00098G

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Please read this outline in conjunction with the following pages on the School of Medical Sciences website:

- Advice for Students
- Learning Resources

(or see "STUDENTS" tab at medicalsciences.med.unsw.edu.au)

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Table of Contents

Staff contacts in the Department of Pathology **1**

PATH3206 Cancer Pathology Integrated Timetable 2017 ..... **3**

PATH3206 Cancer Pathology 7

Introduction **7**

Course administration **7**

Resources for students 8

Recommended text **8**

Images of disease (IOD) database **8**

Additional learning resources **9**

Course evaluation and development **9**

Attendance requirements **9**

Student learning outcomes and graduate attributes 9

Learning and Teaching approach 10

Assessment 11

Team and individual quizzes (TIQ) **11**

Mid-session examination **11**

Team Presentation: Research or Rubbish? Media and Critical Thinking (30%) **11**

Submission of Team project **12**

Late Team projects **12**

End of course final examination **12**

Missed exams **12**

Supplementary examination **12**

Medical certificates **12**

Sample examination paper **14**

The Museum of Human Disease 16

Security in the museum **16**

Safety in the museum **17**

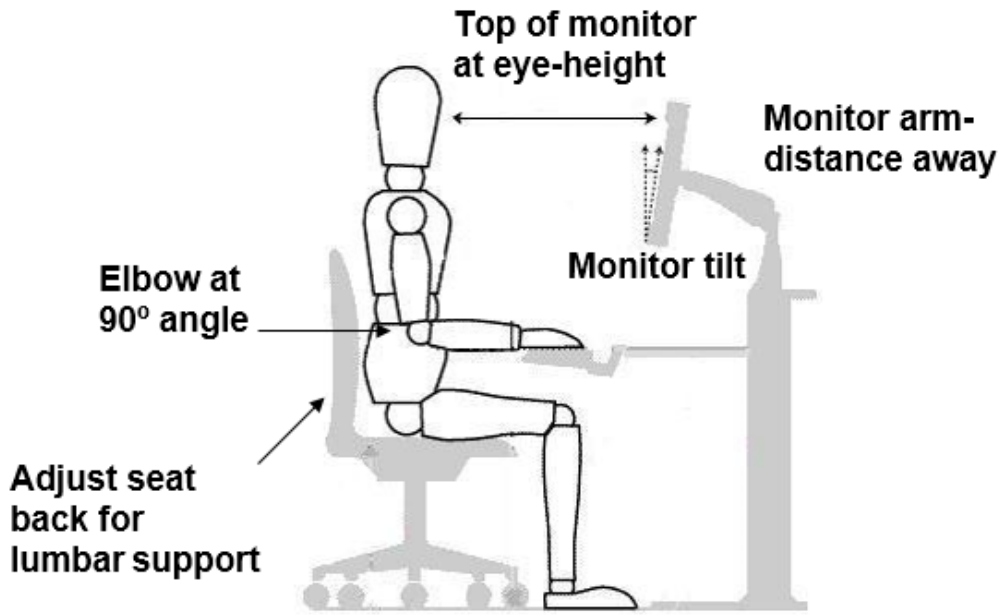
PATH3206 Cancer Pathology Integrated Timetable 2017

Week	Date	Time	Location	Lecturer		Title
1	Mon 27/2	11-12	LG03	Saunders	**Lecture**	Introduction & overview
	Mon 27/2	12-1	LG03	Kumar	**Lecture**	Neoplasia
	Mon 27/2	2-3	LG03		**Tutorial**	Assign tutorial groups Research or rubbish introduction
2	Mon 6/3	11-12	LG03	Saunders	**Lecture**	Hallmarks of Cancer I
	Mon 6/3	12-1	LG03	Saunders	**Lecture**	Hallmarks of Cancer II
	Mon 6/3	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Research or rubbish topics
	Fri 10/3	1-3	WWG06/G07		**Practical**	Intro
3	Mon 13/3	11-12	LG03	Stewart	**Lecture**	Carcinogenesis & risk
	Mon 13/3	12-1	LG03	Stewart	**Lecture**	Carcinogenesis & risk
	Mon 13/3	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Neoplasia (+ Quiz 1)
	Fri 17/3	1-3	WWG06/G07		**Practical**	Neoplasia
4	Mon 20/3	11-12	LG03	Van Es	**Lecture**	Colorectal cancer
	Mon 20/3	12-1	LG03	Rodrigo	**Lecture**	Microenvironment, inflammation
	Mon 20/3	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Carcinogenesis (+ Quiz 2)
	Fri 24/3	1-3	WWG06/G07		**Practical**	Cell cycle
5	Mon 27/3	11-12	LG03	Van Es	**Lecture**	Breast Cancer
	Mon 27/3	12-1	LG03	Turner	**Lecture**	Cancer metabolism
	Mon 27/3	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Breast cancer
	Fri 31/3	1-3	WWG06/G07		**Practical**	Breast cancer
6	Mon 3/4	11-12	LG03	Kumar	**Lecture**	Lung cancer
	Mon 3/4	12-1	LG03	Cowley	**Lecture**	Cancer genomics
	Mon 3/4	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Lung cancer (+Quiz 3)
	Fri 7/4	1-3	WWG06/G07		**Practical**	Lung cancer
7	Mon 10/4	11-12	LG03			**MID SESSION EXAM**
	Mon 10/4	12-1	LG03			
	Mon 10/4	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Feedback - Research or rubbish
	Fri 14/4		WWG06/G07		**Practical**	**NO PRAC - Good Friday**
			MID-SESSION BREAK			
8	Mon 24/4	11-12	LG03	Velan	**Lecture**	Skin Cancer
	Mon 24/4	12-1	LG03	Rodrigo	**Lecture**	Tumour immunology
	Mon 24/4	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Quiz 4 & exam feedback
	Fri 28/4	1-3	WWG06/G07		**Practical**	Skin Cancer

9	Mon 1/5	11-12	LG03	MacCallum	**Lecture**	Leukaemia and lymphoma
	Mon 1/5	12-1	LG03	Pimanda	**Lecture**	Targeted therapies
	Mon 1/5	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Skin cancer
	Fri 5/5	1-3	LG03		**Practical**	Research symposium
10	Mon 8/5	11-12	LG03	Tedla	**Lecture**	Upper GI Cancer
	Mon 8/5	12-1	LG03	Croucher	**Lecture**	Systems biology
	Mon 8/5	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Upper GI & colorectal cancer (Quiz 5)
	Fri 12/5	1-3	WWG06/G07		**Practical**	Colorectal carcinogenesis
11	Mon 15/5	11-12	WWG06/G07	Van Es	**Lecture**	Reproductive Cancer
	Mon 15/5	12-1	LG03	Rodrigo	**Lecture**	Viral carcinogenesis
	Mon 15/5	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Reproductive cancers and viral carcinogenesis
	Fri 19/5	1-3	WWG06/G07		**Practical**	Cervical cancer and viral carcinogenesis
12	Mon 22/5	11-12	WWG06/G07	Weber	**Lecture**	Paediatric cancers
	Mon 22/5	12-1	LG03	Perrow	**Lecture**	Metastasis and novel therapies
	Mon 22/5	2-3	LG03, Mat302/303, AGSM-LG06		**Tutorial**	Paediatric cancers (Quiz 6)
	Fri 26/5	1-3	WWG06/G07		**Practical**	Prostate cancer
13	Mon 29/5	11-12	WWG06/G07	Saunders	**Lecture**	Cancer research
	Mon 29/5	12-1	LG03	Saunders	**Lecture**	Overview & summary
	Mon 29/5	2-3	LG03	Saunders	**Tutorial**	Feedback session

Hazards	Risks	Controls
Ergonomics	Musculoskeletal pain	Correct workstation set-up
Electrical	Electrical shock/fire	Check electrical equipment in good condition before use
Handling pots	Chemical spillage	All portable electrical equipment tested and tagged. Instructions on correct manual handling of pots

Workstation set-up



Manual Handling of Pots

- All pots contain real human tissue that has been generously donated to medical science and **must be treated with appropriate respect and dignity.**
- Specimens are preserved in Perspex and contain a range of preserving chemicals that may be harmful. Chemicals used include **formalin, pyridine, sodium dithionate**. A full list of chemicals and associated MSDS information is available in the H&S Station and on the SoMS website.

MANUAL HANDLING OF POTS

1. It is recommended that all students wash their hands thoroughly as they leave practical class Chemical residues may be present on pots.
2. **Carry one pot at a time**. Use two hands at ALL TIMES and support the base of pot.
3. **Avoid rough handling and/or tilting of pots**. This can cause leaking joints or tear tissue in specimen.

Limit the number of pots on a table at any one time.

Personal Protective Equipment

Not necessary in these practicals.

Enclosed shoes must be worn to all Practicals.

Emergency Procedures

In the event of an alarm, follow the instructions of the demonstrator. The initial sound is advising you to prepare for evacuation and during this time start packing up your things. The second sound gives instruction to leave. The Wallace Wurth assembly point is in the lawn in front of the Chancellery. In the event of an injury inform the demonstrator. First aiders and contact details are on display by the lifts. There is a first aid kit in the laboratory and the Wallace Wurth security office.

Clean up and waste disposal

Spill kit

Declaration

I have read and understand the safety requirements for this practical class and I will observe these requirements.

Signature:……Date:……

Student Number:……..

PATH3206 Cancer Pathology

Introduction

Welcome to PATH3206 Cancer Pathology.

PATH3206 aims to promote understanding of the pathogenic mechanisms underlying neoplasia. There is detailed discussion of molecular carcinogenesis, the metastatic process, and techniques for diagnosis, incorporating recent advances in molecular oncology (genomics, metabolism, immunotherapy, targeted therapeutics, systems biology). Discussion will integrate recent and emerging research findings and develop communication skills and critical thinking. Topics covered include neoplasia of the colon, breast, , stomach, skin, lung, haematological, paediatric and reproductive tract neoplasms.

To understand these processes, you will draw on your prior knowledge of anatomy, histology, molecular biology, biochemistry and physiology.

This course is offered during semester 1 and counts for six units of credit. PATH2201/2 (Processes in Disease) is a prerequisite for the course. The UNSW handbook contains information for students wishing to undertake a major in Pathology.

For those wishing to pursue a career in research or hospital based laboratory work, the course will not only develop basic knowledge of molecular processes, but also provide a framework for understanding how these processes link to the modern practice of medicine. Similarly, for those who may wish to pursue a career in the health sciences, the course will provide an understanding of the cellular and molecular processes underlying clinical manifestations of neoplasia.

The staff of the Department of Pathology joins us in wishing you an interesting and enjoyable semester 1.

Dr Darren Saunders (Convenor, PATH3206)

Course administration

Administrative and general problems related to your attendance, or the content and conduct of the course, can in the first instance be addressed by consulting Dr Darren Saunders (d.saunders@unsw.edu.au) by e-mail. Students wishing to see other members of staff should email and **make an appointment**. If students have difficulties of a personal nature, they should contact the School's Grievance Officer, Professor Nick di Girolamo.

Should you feel that there are particular circumstances that have affected your performance in the course; you should lodge an application for special consideration via: student.unsw.edu.au/special-consideration.

It is intended that supplementary exams for the School of Medical Sciences in Semester 1, 2017 will be held **12 – 14 July 2017.** Special considerations sought outside the 3-day time period WILL NOT be accepted except in TRULY exceptional circumstances.

Resources for students

Recommended text

You are expected to use the following textbook available online via a link in PATH3206 Moodle or the UNSW library SearchFirst website - http://library.unsw.edu.au/HowDoI/databases.html (zID and zPass required). Search for the database MD Consult, then search for Robbins Basic Pathology.

Robbins Basic Pathology. 9th edition. V. Kumar, A.K. Abbas, & J.C. Aster (2012). Saunders & Co. Philadelphia PA; Elsevier Saunders.

Highly recommended for students wishing to study the molecular biology or clinical features of diseases in greater depth:

Robbins and Cotran Pathologic Basis of Disease 9th edition. V. Kumar, A.K. Abbas & J.C. Aster (2015) Elsevier Saunders (also available as an eBook via the UNSW Library website).

Images of disease (IOD) database

Images of Disease (IOD) is a database of images used for teaching within the department. The latest version of Images of Disease is now available online, optimised for smart phones and tablet computers, as well as Firefox 4+, Chrome 13+ and Safari browsers on laptop or desktop computers – http://iod.med.unsw.edu.au (zID and zPass required). An interactive Images of Disease app for iPhone and iPad is available to download from that website. Android and Windows phone versions of the IOD app are also available.

The following information might help you understand more about IOD.

What you get

- Over 3000 images relevant to your study as an undergraduate. Many of these images represent specimens from the Museum of Human Disease, or histopathological images from the student histopathology slide sets. Accompanying X-rays and images of surgical and autopsy specimens are also available.
- A database that links them all together
- A user interface that lets you access the images in a variety of ways
- Interactive "hotspotted" images to assist your understanding of macroscopic pathology.

What you do not get

- A collection of images that you can send to your friends, put in your magazines, put on the Internet or whatever other scheme seems clever at the time.
  Many of the images used in this program are of sensitive nature, and are intended for the purpose of private study by pathology students and graduates. You should exercise appropriate standards of professional ethics when using them.
- A high level of technical support

  Unfortunately, it will be impossible for us to answer all your problems immediately, as we have very limited resources. We will of course make every effort to help, and will provide you with a listing of known problems and difficulties on request.

The Museum of Human Disease page contains links to some excellent undergraduate and postgraduate educational resources, of which we would encourage you to make full use.

See http://medicalsciences.med.unsw.edu.au/students/undergraduate/learning-resources

Additional learning resources

In addition, there are many resources available on the web, which vary from simple patient information brochures to online pathology courses, to information on the latest research. Some general sites you may find useful are:

Medline Plus ('health topics' index of disease with information)
http://www.nlm.nih.gov/medlineplus/healthtopics.html
The BEST Network Slice image database - http://www.best.edu.au/Slice
The Cancer Council New South Wales
http://www.nswcc.org.au/
The NSW Cancer Institute
http://www.cancerinstitute.org.au/
National Cancer Institute
http://www.cancer.gov/

Course evaluation and development

Student evaluative feedback on the course is gathered each year using UNSW's MyExperience platform. Student feedback is taken seriously, and continual improvements are made to the course based in part on such feedback.

Attendance requirements

Attendance at tutorials and practical sessions is compulsory. An 80% attendance is required for you to be eligible to sit the final examination. Students need to provide a reason to Dr Saunders for a missed tutorial or practical via email.

Student learning outcomes and graduate attributes

For the cancer topics covered:

At the completion of this course you should be able to:

1. Describe the molecular and cellular pathogenetic mechanisms of carcinogenesis and metastasis
2. Relate clinical and macro/microscopic features with underlying pathogenetic mechanisms
3. Describe the epidemiology, aetiology, diagnosis, staging, treatment and prognosis of cancers
4. Explain how recent research advances are driving better understanding of molecular pathogenesis and to develop new therapies
5. Develop skills in critical thinking and written and oral communication
6. Develop skills in collaborative teamwork

You are encouraged to develop the following graduate attributes by undertaking the learning activities in this course. These attributes will be assessed within the prescribed assessment tasks (see assessment):

1. An in-depth engagement with the relevant disciplinary knowledge in its interdisciplinary context.
2. The capacity for analytical and critical thinking and for creative problem-solving.
3. The ability to engage in independent and reflective learning.
4. The skills required for collaborative and multidisciplinary work

Learning and Teaching approach

The course employs a variety of teaching modes in order to facilitate your learning:

1. A **collaborative, team-based approach** to learning. It is anticipated that students will have an enhanced learning experience through the use of team quizzes and peer teaching. You are also encouraged to utilise your allocated teams as study groups.
2. A series of **lectures** introduce you to pathological processes, as well as specific examples of those processes affecting organs and tissues;
3. **Tutorials** are intended to extend and amplify your understanding of material presented in lectures in an interactive format, where you are encouraged to clarify any difficulties regarding the concepts discussed. Students will be allocated into teams and will complete individual and team quizzes. Pre-reading will be assigned for each tutorial;
4. **Practical classes** employ computer-based virtual microscopy, in order to permit correlation between disease processes, changes in cells and tissues at the microscopic and macroscopic levels and the manifestations of disease.
   Practical classes will reinforce the clinico-pathological correlations associated with each topic. They are intended to help you to acquire the ability to recognize the macroscopic and microscopic features of pathology specimens and to relate the pathology to clinical application. Macroscopic “pots” will be generally used in conjunction with projected microscopic slides, X-rays and other materials;
5. Learning is supported via **Moodle**. Announcements, timetables, lecture slides, vslides and other resources will be made available during the course. Please be advised that from now on you will no longer access the virtual slides used for this course from the old VSlides website. You will now access the slides through a self-enrolled Moodle module. New functionality will result in you being automatically logged in to the Slice image bank allowing you to use the annotation tool. Please follow the link below and enter the key to gain access:

   Moodle VSlides module: http://moodle.telt.unsw.edu.au/course/view.php?id=21070
   Student Key: VSlides

Assessment

Students will undertake multiple forms of assessment during semester:

- Team and individual quizzes (TIQ) 10%
- Mid-session examination 20%
- Team presentation 30%
- End of course (final) examination 40%

Team and individual quizzes (TIQ)

There will be quizzes held in the tutorial sessions consisting of MCQs. Some tutorial quizzes will be undertaken by the individual student and then by the team, others just individually. Pre-reading for the quizzes is specified in the tutorial outlines of the manual. Students need to provide a reason to Dr Saunders for a missed tutorial via email. Students who provide a valid reason will receive 50% of their team mark. If no reason is provided, the student will receive zero for both the individual and team quiz. However, the team will not penalised.

Mid-session examination

A mid-session exam will be conducted. The examination will include material covered in Weeks 1-6 of PATH3206. The skills achieved by mastering the tutorial quizzes will be assessed in this exam.

Team Presentation: Research or Rubbish? Media and Critical Thinking (30%)

This assignment requires students working in teams to undertake a critical assessment of media coverage of recent cancer research. Teams will present their findings in both a written report and in mixed media format at a research symposium.
This assessment task focuses on the following graduate attributes: Information acquisition, evaluation and synthesis; Effective communication in both oral and written formats; Teamwork, collaborative and management skills; Research inquiry.

The Task

1. Choose a recent (i.e. within the last year) media story about cancer (e.g. from TV, online, print, radio).
2. Identify and assess the primary research and review publication(s) relevant to the media story (preferably including relevant institutional press releases).
3. Perform a critical evaluation of the media reporting of the underlying research. (10%)
4. Each group will submit both a written report and present their findings using flexible format (video, animation, audio, live presentation, poster etc). (20%)

Assessment Criteria

<u>Written reports</u> 2000 words (10% of final mark): assessed by staff according to following criteria:

1. Is the media reporting supported by the research literature?
2. Strengths and weaknesses of the reporting?
3. Did the reporting style accurately reflect the research findings?
4. The team utilises the current medical literature to support their arguments.
5. The team demonstrates critical analysis of exiting medical literature
6. The team demonstrates clear written communication and produces a well-structured report

Team presentations (20% of final mark): Teams will present in a research symposium, assessed against the following criteria:

1. Is the media reporting supported by the research literature?
2. Discuss the strengths and weaknesses of the reporting?
3. Did the reporting style accurately reflect the research findings?
4. The Team demonstrates an ability to utilize the current medical literature to support their arguments.
5. The team demonstrates critical analysis of exiting medical literature
6. The presentation shows a high standard of design and effectively communicates key concepts to the audience in an engaging format.
7. Team members answer questions clearly and directly
8. Presentations will be assessed by staff from the Department of Pathology, with peer assessment of teamwork forming a component of the final mark.

Submission of Team project

Written reports (1 per team) must be submitted electronically as a PDF (or Word .doc), and emailed to d.saunders@unsw.edu.au **no later than 9am Monday 27/3/2017**.

IMPORTANT: The document must have PATH3206, and team number in the file name, e.g. PATH3206_Team1.pdf

Team presentations will be presented in a research symposium during **week 9.** Feedback on written submission will be provided before the presentation.

Late Team projects

Written reports submitted later than 9am Monday 27/3/2017 will be penalised according to University policy on late submissions.

End of course final examination

A 2-hour end of course examination. The questions assess all the learning outcomes. This examination encourages an in-depth engagement with pathology within a clinical context. The questions vary in style; some questions may have two parts.

Missed exams

If in any circumstances, you unavoidably miss an examination, you must inform the registrar and also contact the relevant course office immediately. Normally, if you miss an exam (without medical reason) you will be given an absent fail. If you arrive late for an exam no time extension will be granted. It is your responsibility to check the timetable and ensure that you arrive with sufficient time.

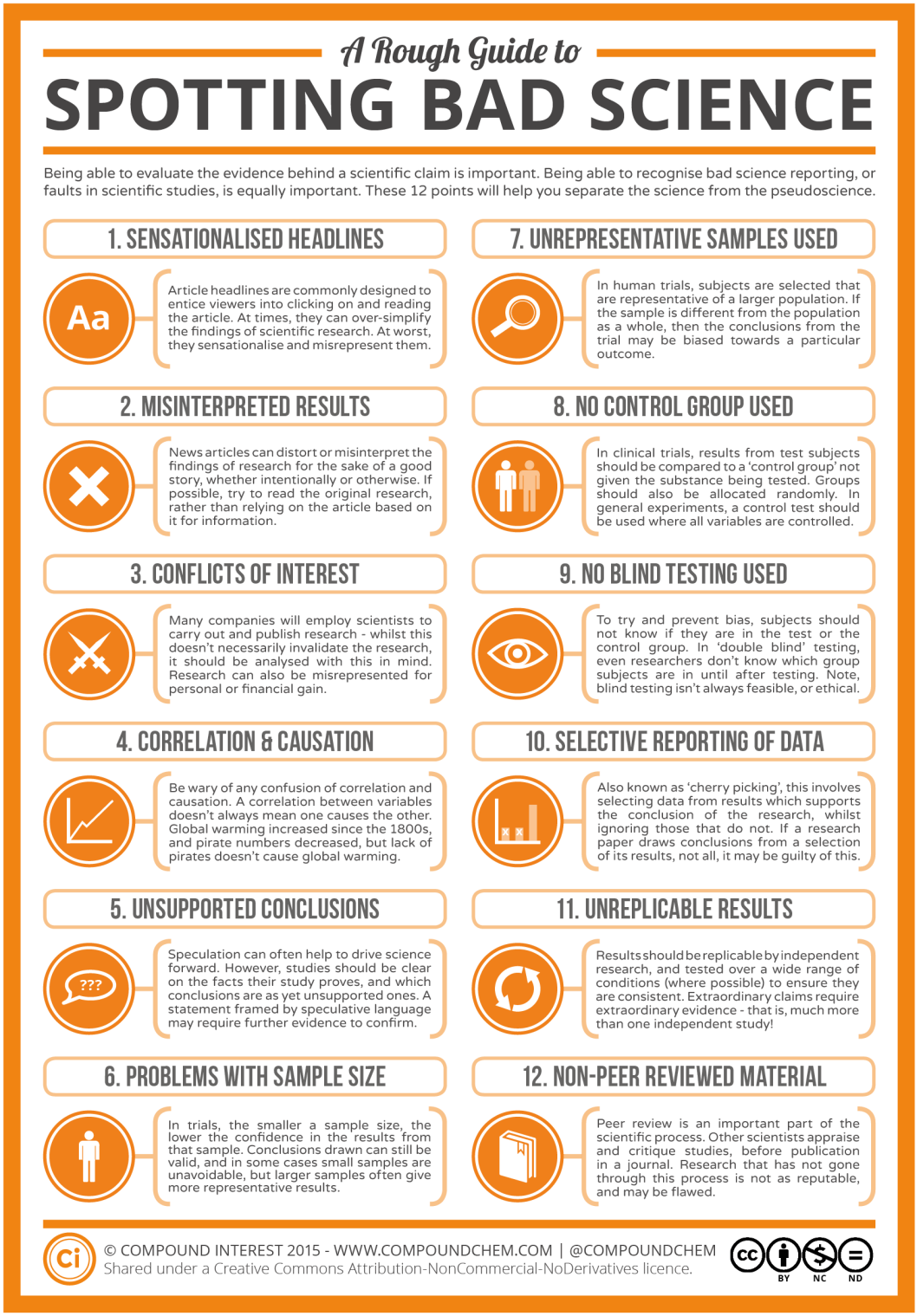
Supplementary examination

A supplementary examination may be awarded at the discretion of the Department of Pathology to students who have provided evidence for special consideration according to the UNSW guidelines. The deferred exam may include a significant oral element. Students who believe that they are eligible for further assessment must contact Dr Saunders to seek further information. It is intended that supplementary exams for the School of Medical Sciences in Semester 1, 2017 will be held on **12 – 14 July 2017.**

Medical certificates

If you miss any examination for medical reasons you must lodge a medical certificate via myUNSW within **3 DAYS** (refer to UNSW Student Gateway@ www.student.unsw.edu.au for further details). **Special considerations sought outside the 3 day time period WILL NOT be accepted except in TRULY exceptional circumstances.**

Examples of 'Research or Rubbish' slots from ABC radio are available on Moodle and the following guide may be useful in evaluating selected media report(s) and structuring critical assessment.



A Rough Guide to

SPOTTING BAD SCIENCE

Being able to evaluate the evidence behind a scientific claim is important. Being able to recognise bad science reporting, or faults in scientific studies, is equally important. These 12 points will help you separate the science from the pseudoscience.

1. SENSATIONALISED HEADLINES

Aa

Article headlines are commonly designed to entice viewers into clicking on and reading the article. At times, they can over-simplify the findings of scientific research. At worst, they sensationalise and misrepresent them.

2. MISINTERPRETED RESULTS

News articles can distort or misinterpret the findings of research for the sake of a good story, whether intentionally or otherwise. If possible, try to read the original research, rather than relying on the article based on it for information.

3. CONFLICTS OF INTEREST

Many companies will employ scientists to carry out and publish research - whilst this doesn't necessarily invalidate the research, it should be analysed with this in mind. Research can also be misrepresented for personal or financial gain.

4. CORRELATION & CAUSATION

Be wary of any confusion of correlation and causation. A correlation between variables doesn't always mean one causes the other. Global warming increased since the 1800s, and pirate numbers decreased, but lack of pirates doesn't cause global warming.

5. UNSUPPORTED CONCLUSIONS

???

Speculation can often help to drive science forward. However, studies should be clear on the facts their study proves, and which conclusions are as yet unsupported ones. A statement framed by speculative language may require further evidence to confirm.

6. PROBLEMS WITH SAMPLE SIZE

In trials, the smaller a sample size, the lower the confidence in the results from that sample. Conclusions drawn can still be valid, and in some cases small samples are unavoidable, but larger samples often give more representative results.

7. UNREPRESENTATIVE SAMPLES USED

In human trials, subjects are selected that are representative of a larger population. If the sample is different from the population as a whole, then the conclusions from the trial may be biased towards a particular outcome.

8. NO CONTROL GROUP USED

In clinical trials, results from test subjects should be compared to a 'control group' not given the substance being tested. Groups should also be allocated randomly. In general experiments, a control test should be used where all variables are controlled.

9. NO BLIND TESTING USED

To try and prevent bias, subjects should not know if they are in the test or the control group. In 'double blind' testing, even researchers don't know which group subjects are in until after testing. Note, blind testing isn't always feasible, or ethical.

10. SELECTIVE REPORTING OF DATA

Also known as 'cherry picking', this involves selecting data from results which supports the conclusion of the research, whilst ignoring those that do not. If a research paper draws conclusions from a selection of its results, not all, it may be guilty of this.

11. UNREPLICABLE RESULTS

Results should be replicable by independent research, and tested over a wide range of conditions (where possible) to ensure they are consistent. Extraordinary claims require extraordinary evidence - that is, much more than one independent study!

12. NON-PEER REVIEWED MATERIAL

Peer review is an important part of the scientific process. Other scientists appraise and critique studies, before publication in a journal. Research that has not gone through this process is not as reputable, and may be flawed.

Sample examination paper

THE UNIVERSITY OF NEW SOUTH WALES
EXAMINATION

PATH 3206
CANCER PATHOLOGY

TIME ALLOWED – **2 HOURS** TOTAL NUMBER OF QUESTIONS - **4**

ANSWER ALL QUESTIONS. ALL QUESTIONS ARE OF EQUAL VALUE

THIS PAPER MAY NOT BE RETAINED BY THE CANDIDATE.

NO HANDWRITTEN OR TYPED NOTES OR TEXTS MAY BE BROUGHT INTO THE EXAMINATION ROOM.

ANSWER EACH QUESTION IN A SEPARATE BOOK. ALL ANSWERS MUST BE WRITTEN IN INK. PENCILS MAY ONLY BE USED FOR DRAWING.

Question 1

(a) Write notes on factors which can help determine the prognosis of a woman with carcinoma of the breast

(b) Compare and contrast the predisposing factors, clinical features and biological behaviours of melanoma and basal cell carcinoma of the skin

Question 2

(a) Discuss the clinical consequences of colorectal neoplasia, including the effects of benign colorectal neoplasms.

(b) Discuss genetic changes that characterise development and progression of colorectal neoplasms. Highlight the ways in which understanding of hereditary bowel cancer syndromes has helped to explain the different genetic pathways involved in sporadic colorectal cancers.

Question 3

(a) Write notes on **one** of the following:

(i) Role of oncogenes and apoptosis-related genes in the development of cancer

or

ii) Role of viruses in carcinogenesis

(b) Describe the macroscopic features that may allow differentiation between benign and malignant neoplasms.

Question 4

A 38 year old woman presented to her local doctor with a 2 month history of bleeding after intercourse. More recently she had a spontaneous bloodstained discharge. After a series of investigations the woman underwent a hysterectomy.

i) What is the likely diagnosis? How could this have been confirmed preoperatively?

ii) Discuss the pathogenesis of the disease listed in part i. How might his disease have been prevented?

iii) If this woman had not undergone treatment how might have her disease progressed?

The Museum of Human Disease

The Donald Wilhelm Museum of Human Disease is located on the ground floor of the Samuels Building (Building F25). Originally located on the 5th floor of the Wallace Wurth Building, it was established by Professor Donald Wilhelm, the Foundation Professor of Pathology at this university. Thanks to his foresight, and to the tireless efforts of Dr G. Higgins (the Museum Curator until 2004), the Museum has been meticulously maintained and updated over the years to reflect the changing patterns of disease in our society. The Museum contains over 2,700 specimens (or "pots"), which display diseased human tissue at the macroscopic level, usually preserved in formalin. Specimens are obtained both from organs removed surgically and from tissue obtained at autopsy, where the natural history of disease is in full view.

Please take note that some specimens of diseases, which have become rare, e.g. diphtheria, are over 60 years old, and are irreplaceable. Each specimen is numbered and is accompanied by a clinical history (when known), a macroscopic description of the abnormalities displayed, and a histopathological description of changes at the microscopic level (where relevant). That information, specific to each of thirty areas (or "bays"), can be found in the Museum catalogues located in a bracket within each bay.

All the specimens in the museum are arranged in one or other of two major groups. One group comprises collections of specimens according to pathological processes such as congenital, inflammation and healing, vascular, neoplasia etc. The second group comprises collections of specimens under organ systems, such as cardiovascular, central nervous, renal etc. As responsible adults, we expect you to maintain decorum in the Museum, behave with care and respect for the integrity of the specimens, and help to keep the Museum tidy at all times. This means no eating or drinking in the Museum, and always returning specimens and catalogues to their allocated places. **Do not shake the pots!** This activity conveys no useful information, but often damages the specimens. If you discover that a specimen is leaking or broken, follow the instructions listed in the safety notice below. **Remember that the Museum is a precious learning resource, of which you are encouraged to make full use**.

Security in the museum

It is a crime under the Human Tissue Act to steal or mistreat material preserved in the Museum or practical class laboratories. Anyone who contravenes the Act will be prosecuted.

In order to protect the collection of specimens, access to the Museum is restricted for students in Medicine and PATH3205 during weekdays from 8 a.m. to approximately 8 p.m. The Museum is security locked, and can only be entered by using your student card to enable the doors to be opened. Mr Williamson and the Museum Technical Officer play a supervisory role during office hours.

The Museum and practical class laboratories are under constant electronic surveillance.

Safety in the museum

- Always handle museum specimens with care and respect. All specimens consist of generously donated human tissue.
- The specimens are preserved in fixative solutions which contain a variety of toxic compounds:

Chemical	Max. Percentage Composition
Glycerol	17 (v/v)
Pyridine	0.8 (v/v)
Sodium Acetate	7 (w/v)
Formalin	<2 (v/v)
Sodium Dithionate	0.4 (w/v)

- For reasons of hygiene, never take food or drink into the museum.
- Never leave a museum specimen on the floor, or in any precarious position.
- If a specimen is leaking, turn it upside down to prevent further leakage, then immediately inform the Museum Technical Officer or a member of academic staff.
- If a specimen is broken, do not attempt to wipe up the spillage. Use the kitty litter provided in the central cupboards to absorb the fumes, then clear the area and immediately inform the Museum Technical Officer or a member of academic staff.
- Remember that the museum is here for your benefit - your cooperation in maintaining neatness and safety at all times is appreciated.

See safety.unsw.edu.au for more Health & Safety resources