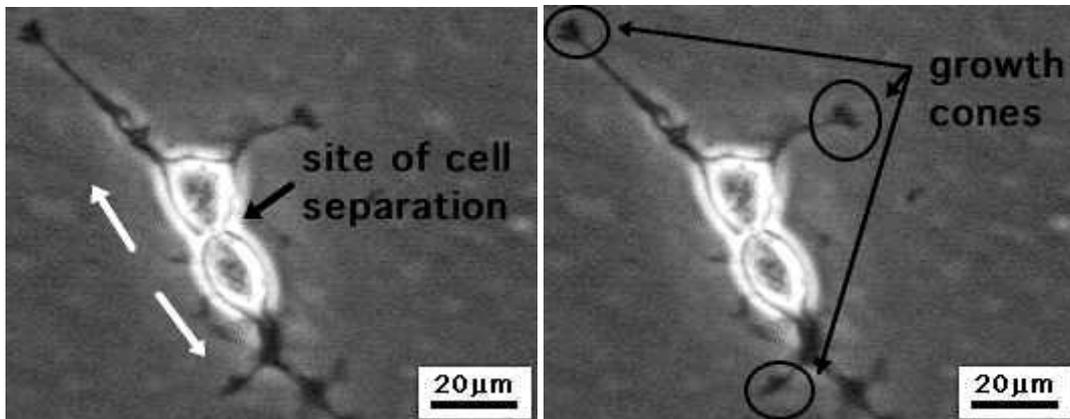




THE UNIVERSITY OF
NEW SOUTH WALES

School of Medical Sciences

ANAT3231 CELL BIOLOGY



Two cells (neurons) which have recently divided.

Session 1, 2011

Course Overview

Dr Mark Hill

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http://php.med.unsw.edu.au/cellbiology/index.php?title=ANAT3231_Cell_Biology

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Dr Mark Hill
(course coordinator)

Welcome to Cell Biology in 2011 and thank you for choosing this course! Cell Biology is at the core of basic scientific investigations and current medical research. The course this year will benefit from the growth in new researchers in Cell Biology within the School. Dr Thomas Fath will be providing a number of the lectures and supervise a laboratory. Professor Peter Gunning, Professor Edna Hardeman, Dr Galina Schevzov, Dr Antonio Lee and Dr Steve Palmer will also be contributing to the course. Skills and knowledge from this current course will be a great advantage in your own future career. Take the opportunity to discuss potential future Honours projects with these researchers. Students who have completed this course have enjoyed both the pace, content and structure of the course. I note that some student have timetable clashes with other courses that we have not yet been able to resolve.

UNSW Cell Biology, is an online resource I have developed to aid your own independent learning, please explore its content. It not only has the usual lecture slides, but also podcast broadcasts, lab project support, online external resources (included complete Cell Biology textbooks), access and searching of the current literature (both research and reviews) and much more.

http://php.med.unsw.edu.au/cellbiology/index.php?title=ANAT3231_Cell_Biology

In **Lectures and Labs** I clearly identify any examinable material. A key component of course structure is the revision final lecture, an opportunity to review course material and ask questions about difficult concepts. As part of the course I also encourage you to develop the general scientific skills of critical thinking, analysis and scientific writing. These are important life skills applicable and required for any future (scientific) career.

This **handout** contains information designed to help you get started and plan for this semester, please take the time to read through it and contact me if you have any difficulties. I am also continually assessing student feedback in the updating, design and presentation of the course. Also feel free to contact me with questions and course feedback by email at any time.

Dr Mark Hill

(January 2011)

COURSE OUTLINE CONTENT DETAILS

Course Coordinator

- Dr Mark Hill
- Office: room G20 ground floor, Wallace Wurth Building
- Email: m.hill@unsw.edu.au

Student Contact

- Appointments with Dr Mark Hill should be made initially by email or through the SOMS office (Room G27, Biosciences Building).
- University policy concerning student contact:

”When a student is enrolled into University of New South Wales, he or she will be automatically issued with a University email account. The School will use that email account as the official electronic channel to communicate with each student.”

School of Medical Sciences Student Advisor

- The SOMS student advisor is Carmen Robinson (Room G27, Biosciences Building, UNSW).
 - Telephone: (+612) 9385 2464
 - Fax: (+612) 9385 2866
 - Email: c.robinson@unsw.edu.au

Course information

- 6 Units of credit, Science/Anatomy program.
- Prerequisite: ANAT2200 or ANAT2241

Course structure

- Two lectures and a single 2 hours tutorial/laboratory per week.
 - Lectures: Tue 10am, Wed 1pm Biomed E
 - Laboratory: Thu 9 - 11 am Wallace Wurth 106/108

Grievance procedure

- Problems or a grievance with the course, first attempt to resolve with the course organizer (Dr Mark Hill, room G20). If the grievance cannot be resolved in this way, please contact to the school's grievance officer (Dr Priti Pandey).

Course Aims

- To present the current theories and applications of cell biology.
- To describe internal and external cellular structures.
- To examine dynamic changes within the cell.
- To cover emerging cell biology research technologies.

Assessment

- There will be three parts to the course assessment:
 1. Independent Learning - Assessment throughout semester. 20%
 2. Group Project – An online project. 20%
 3. Theory - A written test held during the examination period. 60%
- **Assessment Design** has been structured to develop and examine the following graduate attributes and specific learning skills:
 - Student independent learning/research abilities
 - Student scientific writing and referencing skills
 - Student teamwork in small groups
 - Student group work contribution
 - Student ability to plan time and meet assessment deadlines
 - Student acquired knowledge from lecture/lab presentations
 - Student application of knowledge to problem solving
- For more information see also UNSW Guidelines on Learning
 - <http://www.guidelinesonlearning.unsw.edu.au/guidelinesHome.cfm>
- **Student learning Outcomes** By the end of this course you will have learned the current understanding of both cell structure and function and how this is dynamically organized. You will also understand the major methods used to study cells and their application to medical research. This information can then be integrated with other program subjects to give a cellular basis for Anatomy. Importantly the teaching methods and content are designed to encourage your own self-motivated scientific enquiry.
- **Examiner** The course organizer (Dr Mark Hill) will be the examiner. The course assessor is Prof Edna Hardeman.
- **Theory examination** will be an exam within the session 1 exam period and will conform to University examination guidelines. Students absent through illness or misadventure should immediately contact UNSW Student Central.

<https://my.unsw.edu.au/student/atoz/SpecialConsideration.html>
- **Supplementary examinations** will only be offered if the student is unable to attend the final examination for medical or misadventure reasons. Special considerations sought outside the 3 day time period WILL NOT be accepted except in TRULY exceptional circumstances.
- **Individual Assessment** (independent learning) brief questions based upon lecture and laboratory content given in the laboratory time and submitted online by the end of laboratory time throughout semester.
- **Group Project** an online project prepared by small groups of students throughout semester. The project will have a final assessment by student peers and by the course organizer in week 12 of the semester.

Academic honesty and plagiarism

Please Read - Plagiarism & Academic Integrity www.lc.unsw.edu.au/plagiarism

What is 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 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; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism. Knowingly permitting your work to be copied by another student may also be considered to be plagiarism. Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism. The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via: 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, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

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.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle † Adapted with kind permission from the University of Melbourne.

Course Schedule Cell Biology (Timetable 2011 S1 guide only, subject to change)

http://php.med.unsw.edu.au/cellbiology/index.php?title=Course_Timetable

Week	Date (Mon)	Lecture 1 Tue 10 - 11 am Biomed E	Lecture 2 Wed 1 - 2 pm Biomed E	Laboratory Thu 9 - 11 am Wallace Wurth 106
1	07 Mar	Cell Biology Introduction	Cells Eukaryotes and Prokaryotes	Introduction to Lab
2	14 Mar	Cell Membranes Compartments	Cell Nucleus	Microscopy Methods
3	21 Mar	Cell Export - Exocytosis	Cell Import - Endocytosis	Preparation/Fixation
4	28 Mar	Cell Mitochondria	Cell Junctions	Immunochemistry
5	4 Apr	Cytoskeleton Introduction	Cytoskeleton 1 Intermediate Filaments	Cell Knockout Methods
6	11 Apr	Cytoskeleton 2 Microtubules	Cytoskeleton 3 Microfilaments	Cytoskeleton Exercise
7	18 Apr	Extracellular Matrix 1	Extracellular Matrix 2	Confocal Microscopy
	25 Apr	- 01 May	Mid-semester Break	
8	02 May	Cell Cycle	Cell Division	Microarray Visit
9	09 May	Cell Death 1	Cell Death 2	Tissue Culture 1
10	16 May	Signal 1	Signal 2	Tissue Culture 2
11	23 May	Stem Cells 1	Stem Cells 2	Stem Cells Lab
12	30 May	Revision	Development	Stem Cells Analysis
	06 Jun		Study Week	
	13 Jun	- 25 Jun	* Examination Period	

* Theory exam will be within this period. It is intended that supplementary exams for the School of Medical Sciences in Semester 1, 2011 will be held in the week commencing Monday 11th July, 2011.

Public Holidays

- Good Friday Friday 22 April
- Anzac Day Monday 25 April
- Easter Monday Tuesday 26 April (substitute holiday)
- Queen's Birthday Monday 13 June

Lecture	Textbook References - Essential Cell Biology (3rd edn) Alberts, etal. 2009
1	Chapter 1 Introduction to Cells pp1-38
2	Chapter 1 Introduction to Cells pp1-38
3	Chapter 11 Membrane Structure pp363-386, Chapter 12 Membrane Transport 387-424 Chapter 15 Intracellular Compartments and Transport 495-530
4	Chapter 5 DNA and Chromosomes pp171-196
5	Chapter 15 pp514-518
6	Chapter 15 pp522-529
7	Chapter 14 Energy Generation in Mitochondria and Chloroplast pp453-492
8	Chapter 20 Cellular Communities:Tissues, Stem Cells, and Cancer Epithelial Sheets and Cell Junctions pp700-705
9	Chapter 17 Cytoskeleton pp571-608
10	Chapter 17 Cytoskeleton - Intermediate Filaments pp571-576
11	Chapter 17 Cytoskeleton - Microtubules pp577-589
12	Chapter 17 Cytoskeleton - Microfilaments pp590-598
13	Chapter 20 Cellular Communities:Tissues, Stem Cells, and Cancer Extracellular Matrix and Connective Tissues pp690-699
14	Chapter 20 Cellular Communities:Tissues, Stem Cells, and Cancer Extracellular Matrix and Connective Tissues pp690-699
15	Chapter 18 The Cell Division Cycle - Overview of the Cell Cycle pp609-624
16	Chapter 18 The Cell Division Cycle - Mitosis pp625-634, Cytokinesis pp634-638
17	Chapter 18 The Cell Division Cycle - Control of Cell Number pp638-647
18	Chapter 18 The Cell Division Cycle - Control of Cell Number pp638-647
19	Chapter 16 Cell Communication pp531-570
20	Chapter 16 Cell Communication pp531-570
21	Chapter 20 Cellular Communities:Tissues, Stem Cells, and Cancer pp707-715
22	Chapter 20 Cellular Communities:Tissues, Stem Cells, and Cancer pp707-715
23	Chapter 20 Cellular Communities:Tissues, Stem Cells, and Cancer – Tissue Maintenance and Renewal pp707-709

- **Online Resources for Students**

- Additional course information and links can be found from the course homepage.

http://php.med.unsw.edu.au/cellbiology/index.php?title=ANAT3231_Cell_Biology

- **Students Cell Biology Online** – On the above site each student has been allocated an online page. This page is easily accessed, by logging in with your **student number** and **unipass**. This page is where your individual assessment items should be located. This will be introduced in the first laboratory.
- **Blackboard** – UNSW in 2010 moved to Blackboard 6 from Vista. This current 2011 course does not use Blackboard for any online component or assessment items, in future this may be subject to change.
- **School of Medical Sciences (SOMS)**
<http://medicallsciences.med.unsw.edu.au>
- **SOMS Occupational Health and Safety (OHS)**
<http://medicallsciences.med.unsw.edu.au/somsweb.nsf/page/OHS>
- **Lecture Recordings** Available from both **UNSW Cell Biology** and **Lectopia**, online sound recording system making UNSW Lectures available in several formats (including Podcast). Lecture recordings are grouped by the id of the lecture, usually the course code.

http://php.med.unsw.edu.au/cellbiology/index.php?title=2011_lectopia

<http://ilecture.edtec.unsw.edu.au/ilectures/ilectures.lasso?ut=90>

- **Laboratory Structure** It is important to be at this location on time, as some classes will then proceed to other locations on campus. Before participating in any research laboratory, specific OHS information will be provided to students. Time will also be made available in some laboratories for work and discussion on the Group Projects.

The current course laboratory structure is:

1. Tutorial-based classes covering current cell biology techniques.
2. Research-based exercises using cell biology analytical techniques.
3. Research facility visits demonstrating specialist cell biology tools.

Continual course improvement

- Periodically student evaluative feedback on the course is gathered, using among other means, UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process. Student feedback is taken seriously, and continual improvements are made to the course based in part on such feedback.

Administrative Matters

• Attendance requirements

- Students are required to attend each lecture and laboratory unless given special permission.
- Students seeking special consideration should be able to provide medical certificates.
- Students must wear a white lab coat and closed footwear in research laboratories and comply at all times with SOMS occupational health and safety requirements (found on SOMS website).
- Late Assessment items will be penalized by 5% / day late.

• Occupational Health and Safety (OHS)

- The University policies and expectations can be found currently at:

http://www.hr.unsw.edu.au/ohswc/ohs/ohs_home.html

- The School of Medical Sciences (SOMS) also maintains important student specific OHS information.

<http://medicallsciences.med.unsw.edu.au/somsweb.nsf/page/OHS>

• 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 coordinator prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734) or on the web:

<http://www.studentequity.unsw.edu.au/>

- 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.