

HISTOPATHOLOGY 333 Semester 1: 2012

Unit Index No:	311413
Credit points:	25 credit points awarded on successful completion of this unit.
Pre-requisite Units:	Histopathology 233/234, Pathology 232
Unit Coordinator	Associate Professor Vincent Williams
Address	Room 308 201 School of Biomedical Sciences Curtin University of Technology GPO Box U1987 PERTH WA 6845
Email:	v.williams@curtin.edu.au
Phone:	(08) 9266 9046
Fax:	(08) 9266 2342

Please read this outline fully before commencing your study in this unit

Outcomes

Completion of the HISTOPATHOLOGY 333 unit will result in the following:

1. Competency in processing, and paraffin embedding tissue for sectioning and staining for microscopic diagnosis using a range of special staining methods.
2. Practical understanding of surgical dissection methods appropriate to a range of human tissues including laboratory accession processes, recording of macroscopic features and tissue selection for microscopic diagnosis
3. An understanding of and an ability to recognise the diagnostic microscopic features in normal tissues and in a range of pathological tissues using routine H&E and special stains.

4 Proficiency in cutting frozen sections for rapid H&E and histochemistry.

Aims and syllabus summary

Histopathology is the study of abnormal changes in tissue resulting from injury caused by many things including trauma, infection, immune reactions, genetic aberrations and neoplasia. Histopathology forms one of the arms of Anatomical Pathology (AP) together with Diagnostic Cytopathology and Morbid Anatomy. The recognition and diagnosis of pathological changes in tissues from surgery and post-mortem is dependent on the skill of histologists in preparing microscopic samples for assessment.

The aims of this course are to provide students with an understanding of the role of the histologist in the contemporary AP laboratory. Students will be taught the fundamental principles of pathology that will provide an appreciation of the rationale for the application of special stains in the laboratory, a range of skills for the preparation of tissue for microscopy including tissue dissection methods, tissue processing, advanced cryomicrotomy, special staining techniques. The laboratory exercises will develop interpretation and writing skills to describe the microscopic appearances in tissues studied and an appreciation of the standards required for the preparation of tissue sections for diagnosis.

Mechanisms of establishing learning outcomes

Demonstrated competencies to be achieved by students of this unit will be knowledge of

- theory and practice of processing human tissue for microscopic assessment
- ethical guidelines, quality measures and laboratory controls for surgical specimens,
- tissue dissection methods and authority within the current guidelines for medical scientists,
- tissue processing and microtomy techniques,
- frozen section technique,
- demonstration of the biological features of normal and pathological specimens using special staining, immunohistochemistry and ultrastructural methods
- interpretation of normal histological features of human tissue and an understanding of the interpretation of the outcome for the range of adjunct tests studied

Requirements to complete the unit

1. Completed Histopathology 233/234
2. A keen interest in microscopic investigation.
3. Attention to detail
4. Exercise good written and verbal communication skills

5. Effectively source, access and use library catalogue and i-catalogue resources

Safety requirements

1. Laboratory coat to be worn at all times in the laboratory precincts.
2. Closed toe shoes to be worn in the laboratory precincts at all times
3. Read and understand the safety manual for the laboratory
4. Understand the biological hazards that will be encountered and personal protection that must be practiced
5. Know emergency procedures for minor and major laboratory accidents
6. Always inform the supervising staff if you wish to leave the laboratory during formal practical times
7. If you wish to access the laboratory outside of designated practical times permission must be sought from the senior technical officer Mr C Cheung.

Curtin University Mobile Phone Policy

Mobile telephones are to be turned off during lectures and practical laboratory sessions.

Practical Manual

The laboratory practical manual will provide instructions for the activities to be completed during the semester. It is essential that prelab reading is completed in order to make optimum use of available time and to reduce out of hours write up time. The completed laboratory manual exercises are to be handed in before the commencement of the next weeks practical. Practical write-ups are to be submitted to the letter box of A/Prof V Williams. Late receipts will incur a penalty of 10% per day.

Textbooks

The following textbooks, all very useful, have been regularly available from the bookshop

- 1 Bancroft JD & Gamble M (2008). Theory and Practice of Histological Techniques. 6th Edition Churchill Livingstone.
2. Eroschenko VP. diFiore's Atlas of Histology with Functional Correlations. 11th Edition Wolters Kluwer. (2008)
3. Stevens A., Lowe J and Scott I. Core pathology. Third edition Mosby Elsevier
- 4 Kumar V, Abbas A and Fausto N. Mitchell R. Robbins Basic Pathology 8th Edition. Elsevier Saunders (2007).

These texts are essential for the program and can be purchased from the Curtin Bookshop.

Reference Texts

1. Kiernan JA Histological and Histochemical Methods: Theory and Practice. 4th Edition. Scion press (2008).
2. Cook D.J. Cellular Pathology: An introduction to techniques and applications. 2nd Edition. Scion press (2006).
3. Humphrey PA, Dehner LP, Pfeifer JD. The Washington Manual of Surgical Pathology. Wolters Kluwer (2008)
4. Kumar V, Abbas A and Fausto N. Robbins and Cotran. Pathologic Basis of Disease 7th Edition. Elsevier Saunders (2005).
5. Pearse AGE Histochemistry: Theoretical and Applied. Volume One Churchill Livingstone Press.
6. Allen DC, Cameron RI. Histopathology Specimens. Clinical, Pathological and Laboratory aspects. Springer (2004)
7. Lester SC. Manual of Surgical Pathology. 2nd Edition. Elsevier (2006).
8. Bozzola JJ & Russell LD "Electron Microscopy: Principles and Techniques for Biologists. 2nd Edition. Jones & Bartlett Press.
9. Sternberg SS "Histology for Pathologists" Raven Press.
10. Ross MH, Kaye GI and Pawlina W (2006) Histology: A text and atlas. 5th edition. LWW Publication.

A SELECTION OF TEXTS AND SOME REFERENCES HAVE BEEN PLACED IN THE CLOSED RESERVE SECTION OF THE CURTIN LIBRARY.

Online Resources

1. **FLECS-Blackboard** –This will provide you with Module guidelines for all practical questions and other helpful resources for the unit, including announcements regarding

LECTURE/TUTORIAL/ PRACTICAL PROGRAMME

LECTURE: Thursday 0800-1000 hrs (404.204)**PRACTICAL Thursday 1500-1800 hrs (308.126)**

Week	Date	Lecturer	Lecture	Practical Summary
1	1/3	A/Prof V Williams A/Prof V Williams	Histopathology: Overview of course. From surgical excision to the microscope. Fixation, Tissue processing, Decalcification, Embedding, Cutting Artefacts identification and trouble shooting	Cutting, staining and microscopic identification of tissues Decalcification of bone specimen On line normal histology
2	08/3	Mr P Maslen	The surgical specimen: Laboratory handling procedures. Specimen reception, cut up authority, Selection of tissue for processing; small, medium and large specimen procedures for block selection. Orientation techniques block tracking methods. Troubleshooting and pitfalls	Tissue selection, description, processing. Tissue, processing and embedding demonstration. Cutting and staining of blocks a-j H&E, Microscopic assessment and description. Processing blocks for practical 4
3	15/3	A/Prof V. Williams	Aetiology pathogenesis and detection of inflammatory and infectious diseases.	Microtomy exercise and Staining methods for Fungi, Virus, Parasites. Embedding tissues for Practical 4
4	22/3	A/Prof V. Williams	Neoplasia. Biology, epidemiology, pathological features.	Benign and malignant tissue Cutting and Staining. H&E PAS+/- Diastase, Alcian Blue pH 2.5
5	29/3	A/Prof V. Williams	Liver pathology: Surgical specimens, diagnostic applications and standard AP protocols	Liver biopsy and Decalcified tissues. Cutting and Staining Frozen section 1
6	5/4	Dr T Robertson	Theory Application of Electron Microscopy in AP	Practical exam Practical exam
7	12/4	Week Free	Week Free	Week Free
8	19/4	A/Prof V. Williams	Renal pathology: Surgical specimens, diagnostic applications, standard AP protocols	Renal biopsy preparation cutting and staining. Frozen section 2

9	26/4	Mr R Johnsen	Application of Enzyme histochemistry in AP	Frozen section. Muscle enzyme demonstration
9	2/5	Mr R Johnsen	Immunohistochemistry (IHC). Theoretical and practical applications	IHC 1. The effect of fixation on antigenicity
10	9/5	A/Prof V. Williams	Application of IHC to diagnosis in AP	IHC 2. PAP. Diagnostic IHC
11	16/5	Mr R Johnsen	Neuropathology. Overview of the role of AP in neuropathology, specimens and application of special methods	Neurohistological methods. GFAP, MGE, Online revision of CNS tissues
12	23/5	A/Prof. V.Williams	Quality assurance and risk management in AP Revision and review Image test	Practical Exam Microtomy, identification of unknown tissues with the aid of stains
13	30/5	Study week	Study week	Study week
14	6/6	Examination week		
15	13/6	Examination week		

Assessment Details

NOTE AND MARK THE DATES OF THE FOLLOWING ASSESSMENTS IN YOUR UNIT OUTLINE

Method of Assessment

Assignment	10%
Mid Semester Practical	10%
Completed Laboratory Exercises	15%
End of semester practical examinations (image and prac)	25%
End of semester theory examination	40%
TOTAL	100%

Detailed information on assessment in this unit can be found under "Assessment Details" at the end of this document.

Practical Examination (35%) - Wk 6 (10%)

The practical assessments will test competency in sectioning, staining and identification of an unknown tissue and completing an image test. Students must achieve a minimum 50% in end of semester practical examinations to pass the unit.

Completed Laboratory Manual (15%)

Students are expected to finish their lab work weekly and submit the completed exercises for assessment by the end of business on the eve of the next practical. There is a 10% per day penalty for late delivery.

Guidelines for Written submissions:

All work for this unit must be grammatically correct, legible, and meet the expected academic/ professional standards.

Final Examinations (40%)

The final theory examination is a 2 hour essay-answer exam on all lecture/ practical material. A sample of the final exam questions (and answers) will be given in the WEB at a later date. Previous exam papers are also available in the University Library.

NOTE: STUDENTS MUST ACHIEVE AT LEAST 50% FOR THIS END OF SEMESTER EXAMINATION TO SUCCESSFULLY COMPLETE THIS UNIT.

Supplementary Examinations

Supplementary examinations are awarded only at the discretion of the Board of Examiners. The aim of a supplementary examination is to allow the student to correct **minor** problems/deficiencies in the initial assessment and **not** to gain extra study time or correct major problems.

Supplementary Examinations continued

Supplementary examinations are not automatically awarded. The Board of Examiners will carefully review individual cases. No written application for supplementary examination will be considered. Curtin University policy allows **one** only supplementary exam offer per student per semester.

School of Biomedical Sciences Plagiarism Policy

It is not acceptable to copy the words of other students or authors when completing the weekly exercises and assignments in this unit. This action constitutes plagiarism and is regarded as academic malpractice. The penalties for plagiarism can be severe and may include termination from your course of study. All direct quotes must be correctly attributed to the author and should be kept to a minimum. You should include a list of references to acknowledge the source(s) of information used to produce any written work.

Useful examples and explanations of plagiarism may be seen at the following web site – These will help you in understanding the nature of this form of academic malpractice.

<http://www.indiana.edu/~wts/wts/plagiarism.html>

As a guide only, typical penalties which may be imposed by the School of Biomedical Sciences for some of the more common types of plagiarism (including collusion) are shown in the Table below. Please note that each case of academic malpractice is assessed individually, and that penalties actually imposed by the Head of School (or delgatee) may vary from the examples shown in the Table.

Example	Degree of seriousness	Typical Penalty
Students submitting very similar work (even as a result of legitimate co-operation)	Collusion Minor to Severe depending on context	Loss of marks for that question or assignment etc by both students
Not referencing input (factual statements, definitions etc) where students' words are used	Minor to Intermediate	Loss of 5% of assessment entity for each instance
Not referencing input where plagiarised words are used	Depends on context, but may be serious	Loss of 50 – 100% of marks for that question or assignment as appropriate
Not acknowledging ideas or concepts of others (ie. stealing intellectual property)	Serious misconduct	Loss of marks plus an additional penalty which could entail failure of unit and/or possible termination from course depending on the circumstances

Feedback

The School welcomes your feedback as one way to keep improving this unit. Later this semester, you will be encouraged to give unit feedback through **eVALUate**, Curtin's online student feedback system (see <http://evaluate.curtin.edu.au>).

