School of Medicine

MEDI210: Histology

Subject Outline
Autumn, 2015
On-Campus
Wollongong

Subject Information
Credit Points: 6
Pre-requisite(s): MEDI111 or MEDI112 or SHS111 or SHS112
Co-requisite(s): Nil
Restrictions: A quota may apply in any one year
Contact Hours: 2 hrs Lect, 3 hrs Pract, 2-3 hrs Study time per week

Subject Contacts
Subject Coordinator/Lecturer

<table>
<thead>
<tr>
<th>Name:</th>
<th>Prof Paul Else</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Building 41, Room 337</td>
</tr>
<tr>
<td>Telephone:</td>
<td>61 2 4221 3496</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:paul_else@uow.edu.au">paul_else@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times:</td>
<td>Email for appointment</td>
</tr>
</tbody>
</table>

Student Support and Advice
For general enquiries please contact the Student Centre:

Location: 41.152
Telephone: 61 2 4221 3492
Email: smah-students@uow.edu.au
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Section A: General Information

Subject Learning Outcomes

<table>
<thead>
<tr>
<th>On completion of this subject, students should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Identify basic structures in a histological section</td>
</tr>
<tr>
<td>b) Relate structure to function</td>
</tr>
<tr>
<td>c) Deduce the functions of unfamiliar tissue based on their histological appearance</td>
</tr>
<tr>
<td>d) Communicate information on basic aspects of histology for all tissues and major organ systems of the body</td>
</tr>
</tbody>
</table>

Subject Description

This subject provides an introduction to the structure and function of mammalian cells, tissues and organs. The practicals and lectures will emphasise functional histology. Students will examine cell ultrastructure, gain an appreciation of histological methods and acquire a detailed understanding of the major tissue types and how these tissues are integrated to produce the functional characteristics of the major organs/systems of the body. These include the cardiovascular, lymphatic, immune, integumentary, respiratory, digestive, urinary, endocrine and reproductive systems.

Graduate Qualities

The University of Wollongong has developed five graduate qualities (http://www.uow.edu.au/student/qualities/index.html), which it considers express valuable qualities that are essential for UOW graduates in gaining employment and making an important contribution to society and their chosen field. Student development of the following graduate qualities will be enhanced by their participation in this subject:

1. **Informed**: Have a sound knowledge of an area of study or profession and understand its current issues, locally and internationally. Know how to apply this knowledge. Understand how an area of study has developed and how it relates to other areas.

2. **Independent learners**: Engage with new ideas and ways of thinking and critically analyse issues. Seek to extend knowledge through ongoing research, enquiry and reflection. Find and evaluate information, using a variety of sources and technologies. Acknowledge the work and ideas of others.

3. **Problem solvers**: Take on challenges and opportunities. Apply creative, logical and critical thinking skills to respond effectively. Make and implement decisions. Be flexible, thorough, innovative and aim for high standards.

4. **Effective communicators**: Articulate ideas and convey them effectively using a range of media. Work collaboratively and engage with people in different settings. Recognise how culture can shape communication.

5. **Responsible**: Understand how decisions can affect others and make ethically informed choices. Appreciate and respect diversity. Act with integrity as part of local, national, global and professional communities.

eLearning Space

This subject has materials and activities available via eLearning. To access eLearning you must have a UOW user account name and password, and be enrolled in the subject. eLearning is accessed via SOLS (student online services). Log on to SOLS and then click on the eLearning link in the menu column. For information regarding the eLearning spaces please use the following link: http://uowblogs.com/moodlelab/files/2013/05/Moodle_StudentGuide-1petpo7.pdf

Lecture, Tutorial, Laboratory Times

All timetable information is subject to variation. Check the latest information on the university web timetable via the Timetable link under Study Resources on the Current Students webpage or log into SOLS to view your personal timetable prior to attending classes.
Readings, References and Materials

Textbooks
The following text(s) will need to be purchased by students enrolled in this class.

Nil

Prescribed Readings (includes eReadings)
The following texts are prescribed for this subject, but students are not expected to purchase these. They are available to students through the library or on the subjects eLearning site.

Ross, M. H., and Pawlina W. Histology: A Text and Atlas, 6th edition, Williams and Wilkins, Sydney (or earlier editions will also be more than adequate).

Materials
Nil

Recommended Readings
The following references complement the prescribed readings and textbooks:

The library has a reasonable number of Histology textbooks with most of the histology texts call #s around 611-616. There are also a number of CD-ROMs. Firstly from Micron Biosystems a CD called MedPics that cover most areas of Histology and also some Pathology. The MedPics CD is a very old CD (still works well but may require some monitor colour adjustment in your computers control pane etc). Computers requirements of these CD’s are very basic, other than needing a CD-drive, and they will work on PC or Mac.

Also available for loan is a CD that has won multiple awards for excellence. Called Virtual Microscope: General and Special Histology (Version 2) the benefits of this CD is that it removes the requirements for a microscope. Using this CD more material can be covered in the same time (not requiring the focusing of the microscope and the use of slides) on a PC – however recent PC can have some problems and to get over this the alternative is to use the two computers set-up in the foyer of the 3rd floor of building 41 – you can use these at anytime the building is open. These CD’s are used as an alternative to microscope driven practs in the later part of the practical course once proficiency in microscopy has been gained.

Recommended readings are not intended as an exhaustive list, students should use the Library catalogue and databases to locate additional resources.

Recent Changes to this Subject
i. Update to subject learning outcomes and change to subject code

Ethical Objection to the Use of Animal and Animal Products
In order to achieve specific learning objectives, the use of animals, animal tissues, and or animal-derived products (such as sera) is inherent and unavoidable. Students with conscientious objections to this use should not enrol in this subject.

Students who intend to avoid a particular learning activity on the basis of conscientious objection should notify the subject coordinator in writing as soon as possible and not later than the end of Week 1 of the session. Students who do not participate in a particular learning activity are required to complete an alternative exercise (a CD-ROM is available) or attend the practical and “observe”. The material involved is examinable and the prac must be written up and completed in your workbook. For further information, refer to http://www.uow.edu.au/about/policy/UOW058708.html
Laboratory Safety Guidelines
The rules below are general rules that are required in laboratories.

- Before commencing your project you are to ensure that you understand specific procedures for the laboratory in which you work.
- You will need to fill out a risk assessment form before commencing any experiments (confer with your supervisor).
- Never use any equipment or attempt any experiment without checking the safety implications with your supervisor or experienced delegated laboratory worker.
- Undergraduate students are not permitted to work after hours unless there is appropriate approval and supervision.

Timetable of Topics*

<table>
<thead>
<tr>
<th>Week</th>
<th>Week Commencing</th>
<th>Lecture 1</th>
<th>Lecture 2</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>02/03/2015</td>
<td>Intro &amp; Hist. Perspective</td>
<td>Cytology 1</td>
<td>Microscopy – Light and Electron Microscope Reading Assignment and EM Research Project</td>
</tr>
<tr>
<td>2</td>
<td>09/03/2015</td>
<td>Cytology 2</td>
<td>Light Microscopy</td>
<td>Microscopy – Cells &amp; Organelles (Reading assignment to be completed)</td>
</tr>
<tr>
<td>3</td>
<td>16/03/2015</td>
<td>Electron (S &amp; T) microscopy</td>
<td>Preparative Techniques</td>
<td>Primary tissues 1: Epithelia</td>
</tr>
<tr>
<td>4</td>
<td>23/03/2015</td>
<td>Epithelium</td>
<td>Connective (Loose, dense and adipose)</td>
<td>Primary tissues 2: Connective tissues (Virtual – Microscope)</td>
</tr>
<tr>
<td>5</td>
<td>30/03/2015</td>
<td>Connective (Cartilage and bone)</td>
<td>Connective (blood and lymph)</td>
<td>Primary tissues 2: Connective tissue (Microscopes) (EM research project to be completed)</td>
</tr>
</tbody>
</table>

Mid-Session Recess

<table>
<thead>
<tr>
<th>Week</th>
<th>Week Commencing</th>
<th>Lecture 1</th>
<th>Lecture 2</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>13/04/2015</td>
<td>Nervous</td>
<td>Nervous</td>
<td>Primary tissues 3 &amp; 4: Muscle &amp; Nerves – Vascular system (Virtual - Microscopes)</td>
</tr>
<tr>
<td>7</td>
<td>20/04/2015</td>
<td>CNS</td>
<td>Muscle (Skeletal, Cardiac and Smooth)</td>
<td>Primary tissues 3 &amp; 4: Muscle &amp; Nerves – Vascular system (Microscopes)</td>
</tr>
<tr>
<td>8</td>
<td>27/04/2015</td>
<td>Circulation and Cardiovascular</td>
<td>Lymphatics and Immune</td>
<td>Systems 1: Immune, Integument &amp; Respiratory (Virt-Mic)</td>
</tr>
<tr>
<td>9</td>
<td>04/05/2015</td>
<td>Integumentary</td>
<td>Respiratory</td>
<td>Systems 1: Immune, Integument &amp; Respiratory (Micros.)</td>
</tr>
<tr>
<td>10</td>
<td>11/05/2015</td>
<td>Digestion: Upper</td>
<td>Digestion: Lower</td>
<td>Systems 2: Gastro. Urinary + Accessory Organs (Virt-Mic)</td>
</tr>
<tr>
<td>11</td>
<td>18/05/2015</td>
<td>Digestion: Accessory</td>
<td>Urinary 1</td>
<td>Systems 2: Gastro. Urinary + Accessory Organs (Micros)</td>
</tr>
<tr>
<td>12</td>
<td>25/05/2015</td>
<td>Urinary 2</td>
<td>Endocrine 1</td>
<td>System 3: Endocrine and Reproductive (Vir-Mic) Study Time – Lab open all day</td>
</tr>
<tr>
<td>13</td>
<td>01/06/2015</td>
<td>Male Reproductive</td>
<td>Female Reproductive</td>
<td>Practical Exam</td>
</tr>
</tbody>
</table>

*The above timetable should be used as a guide only, as it is subject to change. Students will be advised of any changes as they become known.
Section B: Assessment

Assessment Summary

<table>
<thead>
<tr>
<th>Assessment Item</th>
<th>Form of Assessment</th>
<th>Due Date</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment 1</td>
<td>Practical Testing (variable) Assessments</td>
<td>TBA</td>
<td>20%</td>
</tr>
<tr>
<td>Assessment 2</td>
<td>Practical Exam</td>
<td>Week 13</td>
<td>30%</td>
</tr>
<tr>
<td>Assessment 3</td>
<td>Theory Exam</td>
<td>During exam period</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td><strong>Total Marks</strong></td>
<td></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Details of Assessment Tasks
Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

**Assessment 1**
Practical Testing (variable) Assessments
Due date: TBA
Weighting: 20%
Submission: Submit a hardcopy of your assessment to your tutor/demonstrator in your prac class
Type of Collaboration: Individual Assessment
Length: 5-10 minutes
Details: Occur at start of most prac sessions
There will be between 5-6 practical session items used to form this assessment. Items may vary but can include marking of the answer sheets e.g. light microscope and/or electron microscope work sheet, marking of the in lab prac work in practical books, marking of the Virtual Microscope answer sheets, or small spot tests derived from either source completed in the previous week. These tests will be random and it is the responsibility of each student to be prepared and to keep their prac work up to date and to be prepared for a test on the previous weeks material throughout the period of the practical sessions.
Style and format: Short answer quizzes, worksheets and prac marks
Marking Criteria: Assessment 1 will be marked using the following criteria: Correct answers to precise questions

**Assessment 2**
Practical Exam
Due date: During timetabled a prac period in Week 13
Weighting: 30%
Submission: Submit a hardcopy of your assessment to your tutor/demonstrator in your prac class
Type of Collaboration: Individual Assessment
Length: ~50 mins
Details: Involves identification of structures, cell and tissue types of relevance to the study of histology
Style and format: Short answer (~45 questions)
Marking Criteria: Assessment 2 will be marked using the following criteria: Correct answers to precise questions (eg identification of cellular structures and cell types)

**Assessment 3**
Theory Exam
Due date: During exam period
Weighting: 50%
Submission: Exam papers and answers must be submitted at the conclusion of the exam.
<table>
<thead>
<tr>
<th>Type of Collaboration</th>
<th>Individual Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>3 hrs</td>
</tr>
<tr>
<td>Details</td>
<td>Normal major exam conditions apply</td>
</tr>
<tr>
<td>Style and format</td>
<td>Includes multiple choice, short answers, label identification of diagrams and one long answer question – PRIMARILY BASED OF THEORY (LECTURE) MATERIAL</td>
</tr>
<tr>
<td>Marking Criteria</td>
<td>Assessment 3 will be marked using the following criteria: Correct answers to precise questions (eg identification of cellular structures and cell types)</td>
</tr>
</tbody>
</table>

**Minimum Requirements for a Pass in this Subject**

To receive a clear pass in this subject a total mark of 50% or more must be achieved. In addition, failure to meet any of the minimum performance requirements is grounds for awarding a Technical Fail (TF) in the subject, even where total marks accumulated are greater than 50%.

The minimum performance requirements for this subject are:

- attempt all assessment tasks
- obtain 50% or more in each major assessment item (30% practical, 20% practical exam and 50% theory exam)

**Minimum Student Attendance and Participation**

It is expected that students will allocate 12 hours per week to this subject, including any required class attendance, completion of prescribed readings and assessment tasks.

Student attendance at practicals is compulsory and students must attend 100% of classes. Absences will require the submission of an application for Academic Consideration via SOLS and the presentation of suitable documentation, for example a Medical Certificate, to Student Central as soon as practical. For further details about applying for academic consideration visit the Student Central webpage: [http://www.uow.edu.au/student/central/academicconsideration/index.html](http://www.uow.edu.au/student/central/academicconsideration/index.html)

**Scaling**

Scaling may be used in this subject (by a combination of methods dependent upon circumstances pertaining to the result in any one year e.g. addition/subtraction, percentage adjustment or piecewise linear scaling). Any adjustment will normally be very minor (e.g. <2% of final mark).

**Late Submission**

Late submission of an assessment task without an approved extension of the deadline is not acceptable. If you are unable to submit an assessment due to extenuating circumstances (e.g. medical grounds or compassionate grounds), you can make an application of academic consideration. Not all circumstances qualify for academic consideration. For further details about applying for academic consideration visit the Student Central webpage: [http://www.uow.edu.au/student/central/academicconsideration/index.html](http://www.uow.edu.au/student/central/academicconsideration/index.html)

**Late Submission Penalty**

Marks will be deducted for late submission at the rate of 5% of the total possible marks for that particular assessment task per day. This means that if a piece of work is marked out of 100, then the late penalty will be 5 marks per day (5% of 100 possible marks per day). The formula for calculating the late penalty is: the total possible marks x 0.05 x number of days late. For the purposes of this policy a weekend (Saturday and Sunday) will be regarded as two days.

For example:

- Student A submits an assessment which is marked out of 100. The assessment is submitted 7 days late. This means that a late penalty of 35 marks will apply (100 x 0.05 x 7). The
assessment is marked as per normal out of 100 and is given a mark of 85/100, and then the late penalty is applied. The result is that the student receives a final mark of 50/100 for the assessment (85 (original mark) – 35 marks (late penalty) = 50/100 (final mark)).

- Student B submits a report which is marked out of 20. The report is submitted three days late. This means that a late penalty of 3 marks will apply ((20 x 0.05 x 3). The report is marked as per normal out of 20 and is given a mark of 17/20, and then the late penalty is applied. The result is that the student receives a final mark of 14/20 for the report (17 (original mark) – 3 marks (late penalty) = 14/20 (final mark)).

No marks will be awarded for work submitted either after the assessment has been returned to the students or more than two weeks after the due date, whichever is the sooner. This does not apply to situations where a particular assessment task is undertaken by students at different times throughout the session, but where the assessment is based on experiments or case studies specific to a student. In this case no marks will be awarded for work submitted more than two weeks after the due date.

Notwithstanding this, students must complete all assessment tasks to a satisfactory standard and submit them, regardless of lateness or loss of marks, where submission is a condition of satisfactorily completing the subject.

Supplementary Assessments
Supplementary assessment may be offered to students whose performance in this subject is close to that required to pass the subject, and are otherwise identified as meriting an offer of a supplementary assessment. The precise form of supplementary assessment will be determined at the time the offer of a supplementary assessment is made.

Students can log on to SOLS and click on the link titled “Supplementary Assessment” to view any applicable offers or use the following link:

System of Referencing Used for Written Work
The Author-Date (Harvard) referencing system should, unless otherwise specified for a particular assessment (check Details of Assessment Tasks), be utilised. A summary of the Harvard system can be accessed on the Library website at: http://public01.library.uow.edu.au/refcite/style-guides/html/

Use of Internet Sources
Students are able to use the Internet to access the most current information on relevant topics and information. Internet sources should only be used after careful critical analysis of the currency of the information, the role and standing of the sponsoring institution, reputation and credentials of the author, the clarity of the information and the extent to which the information can be supported or ratified by other authoritative sources.

Plagiarism
The full policy on Academic Integrity and Plagiarism is found in the Policy Directory on the UOW website.

"The University's Academic Integrity and Plagiarism Policy, Faculty Handbooks and subject guides clearly set out the University’s expectation that students submit only their own original work for assessment and avoid plagiarising the work of others or cheating. Re-using any of your own work (either in part or in full) which you have submitted previously for assessment is not permitted without appropriate acknowledgement. Plagiarism can be detected and has led to students being expelled from the University.

The use by students of any website that provides access to essays or other assessment items (sometimes marketed as ‘resources’), is extremely unwise. Students who provide an assessment item
(or provide access to an assessment item) to others, either directly or indirectly (for example by uploading an assessment item to a website) are considered by the university to be intentionally or recklessly helping other students to cheat. This is considered academic misconduct and students place themselves at risk of being expelled from the University."

Submission of Assessments
Refer to the submission requirements under the details of the individual assessments. Students should ensure that they receive a receipt/evidence acknowledging assessment submission. Students will be required to produce this in the event that an assessment task is considered to be lost. Students are also expected to keep a copy of all their submitted assignments in the event that re-submission is required.

Assessment Return
Contact your lecturer/tutor/subject coordinator if you would like feedback on your assessment. In accordance with University Policy marked assessments will usually only be held for 21 days after the declaration of marks for that assessment.
Section C: General Advice

Students should refer to the Faculty of Science, Medicine and Health website for information on policies, learning and support services and other general advice.

University Policies

Students should be familiar with the following University policies:

a. Code of Practice – Teaching and Assessment

b. Code of Practice – Research, where relevant

c. Code of Practice – Honours, where relevant

d. Student Charter

e. Code of Practice – Student Professional Experience, where relevant

f. Academic Integrity and Plagiarism Policy

g. Student Academic Consideration Policy

h. Course Progress Policy

i. Graduate Qualities Policy

j. Academic Grievance Policy (Coursework and Honours Students)

k. Policy and Guidelines on Non-Discriminatory Language Practice and Presentation

l. Workplace Health and Safety, where relevant

m. Intellectual Property Policy

n. IP Student Assessment of Intellectual Property Policy, where relevant

o. Policy on Ethical Objection by Students to the Use of Animal and Animal Products in Coursework Subjects, where relevant

p. Human Research Ethics Guidelines, where relevant

q. Animal Research Guidelines, where relevant
r. Student Conduct Rules and accompanying Procedures or Research Misconduct Policy for research students

Student Support Services and Facilities
Students can access information on student support services and facilities at the following link. This includes information on “Academic Support”, “Starting at University”, “Help at University” as well as information and support on “Career’s and Jobs”. http://www.uow.edu.au/student/services/index.html

Student Etiquette
Guidelines on the use of email to contact teaching staff, mobile phone use in class and information on the university guide to eLearning ‘Netiquette’ can be found at http://www.uow.edu.au/student/elearning/netiquette/index.html

Version Control Table

<table>
<thead>
<tr>
<th>Version Control</th>
<th>Release Date</th>
<th>Author/Reviewer</th>
<th>Approved By</th>
<th>Amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20150123</td>
<td>Prof Paul Else</td>
<td>Ashleigh Rae ADE Nominee</td>
<td>Final MEDI210 Autumn 2015 outline</td>
</tr>
</tbody>
</table>

Hardcopies of this document are considered uncontrolled please refer to UOW website or eLearning for the latest version