Faculty of Medicine

School of Medical Sciences

HESC3541

Clinical Exercise Physiology

TERM 1, 2019

COURSE OUTLINE

Contents

Staff Contact Details

Co-convenors:	**Dr Matthew Jones** School of Medical Sciences Office: Wallace Wurth East 202	matthew.jones@unsw.edu.au Ph 9385 3375 Office Hours: By appointment
	A/Prof David Simar School of Medical Sciences Office: Wallace Wurth East 420	d.simar@unsw.edu.au Ph 9385 8142 Office Hours: By appointment
Lecturers:	**Dr Belinda Parmenter** School of Medical Sciences	b.parmenter@unsw.edu.au
	A/Prof Carolyn Broderick School of Medical Sciences	c.broderick@unsw.edu.au
	Dr Cristan Herbert School of Medical Sciences	c.herbert@unsw.edu.au
Demonstrators:	**Mr Michael Wewege** **Mr Liam Palmer** **Ms Sarah Ludowici** **Ms Lauren Ha**	m.wewege@unsw.edu.au liam.e.palmer@unsw.edu.au saraheludowici@gmail.com lauren.ha@unsw.edu.au
Technical Officer:	**Mr. Balu Daniel** School of Medical Sciences	d.balu@unsw.edu.au
Program Officer:	**Ms. Ina Ismail** School of Medical Sciences	UNSW Student Web Portal Forms

Course details

Credit Points: 6 UOC

Course Prerequisites / Assumed Knowledge

- PHSL2501 – Human Physiology A
- HESC2501 – Exercise Physiology
- PHSL2502 - Human Physiology B
- PATH2202 – Processes in Disease Health and Exercise Science
  or PATH2201 – Processes in Disease

Course Description

This course will provide you information about the epidemiology and the pathophysiology of respiratory, metabolic, cardiovascular and immune diseases. You will gain knowledge of how to set up and implement exercise testing and programming in these special populations in order to provide symptomatic relief, as well as to manage the underlying disease. You will also learn how to manage the interaction between exercise and medications in these special populations. By the end of the term you will be able to successfully use exercise testing and programming in individuals with these diseases to improve their health and quality of life. The teaching and learning approaches used in this course will include problem-based learning as well as more traditional evidence-based information provided during the lectures.

Aims of the Course
1. To provide knowledge on the epidemiology and the pathophysiology of respiratory, metabolic, cardiovascular and immune disorders
2. Develop an understanding of the specificity of those populations based on their symptoms and treatments and their exercise limitations
3. Develop practical skills necessary for the assessment of the exercise capacity and the prescription of exercise in those populations
4. Develop competencies in exercise testing interpretation

Student Learning Outcomes

This term is used to describe what it is that you should be able to do, explain or understand if you have learned effectively in the course. For each lecture, tutorial, practical and assessment item, the expected learning outcomes will be explicitly stated. The assessment in the course will be matched as closely as possible to the stated learning outcomes. That is, the assessment will test how well you have achieved the learning outcomes of the course. The general learning outcomes for the course are as follows:

At the end of the course you should:
1. Have an understanding of the physiological mechanisms responsible for the development of the chronic conditions addressed in this course
2. Have a strong knowledge of the exercise limitations and contraindications associated with those conditions as well as the main strategies used to prescribe exercise in these populations
3. Have acquired the clinical skills required to monitor the cardio-respiratory functions at rest, during exercise and recovery
4. Develop competencies in using the information collected during the pre-screening procedure and the exercise test to individualise exercise prescription

Graduate Attributes
- Understand the relationship between physical activity and health
- Deliver lifestyle change programs that use exercise for the primary prevention of disease and the management of chronic disease
- Apply clinical skills and knowledge relevant to cardiopulmonary, metabolic, musculoskeletal and neuromuscular rehabilitation
- Engage in independent and reflective learning for the betterment of professional clinical practice, following an evidence-based approach
- Communicate effectively with patients, colleagues and other health professionals

Rationale for the inclusion of content and teaching approach

How the course relates to the Exercise Physiology profession – This course provides a strong background on the Pathophysiology, the exercise limitations and the strategies to optimize exercise testing and prescription for major chronic conditions. It also develops critical skills necessary for the safe monitoring of cardio-respiratory function at rest, during exercise and recovery.

How the course relates to other courses in the Exercise Physiology program – This course builds on the knowledge and skills introduced in earlier courses in the program, in particular Human

Physiology A and B (PHSL2501/2502), Process in Disease (PATH2202) and Exercise Physiology (HESC2501), to further develop critical skills and knowledge to enable students to interact with patients with chronic conditions. These skills and knowledge will be applied throughout the 4th year clinical practicum. Learning about medications and the impact on exercise responses will be extended in Pharmacology for Health and Exercise Science (PHAR2211).

Teaching strategies

Lectures – The lectures will provide you information on the epidemiology and the pathophysiology of respiratory, metabolic, cardiovascular and immune diseases. This information will be further used to implement exercise testing and prescription in those populations by taking into account the specificity of each populations and the interaction with the medications used.

Lecture notes will be available in PDF format on **Moodle.**

Tutorials – During the tutorials, a problem based learning strategy will be used to discuss testing exercise capacity in specific populations. Those tutorials will also help you to learn how to use scientific literature to improve exercise testing and prescription in those populations and how to analyse data collected during exercise tests.

Practicals – During the practicals you will learn clinical skills concerning exercise testing in clinical conditions that will consist of:
- lung function assessment (spirometry)
- cardiac activity monitoring (electrocardiography)
- exploring the metabolic and respiratory adaptations (gas analysis)

Assessments – These tasks have been chosen as tools to enhance and guide your learning as well as a way of measuring performance and are therefore central teaching strategy in this course.

Assessment

Summary of Assessments	Weight	Due Date
ASSESSMENT TASK 1 – QUIZZES	**0%**	Weeks 2, 4, 7, 10
ASSESSMENT TASK 2 – MID TERM EXAM	**20%**	Week 5
ASSESSMENT TASK 3 – CLINICAL SKILLS ASSESSMENT	**15%**	Weeks 7-8
ASSESSMENT TASK 4 – REPORT ON EXERCISE TESTING	**25%**	Week 11
ASSESSMENT TASK 5 – FINAL EXAM	**40%**	Examination period

Submission of Assessment Tasks

Written assessment tasks must be handed in via Turn-it-in which can be found on the TELT Moodle website. Penalties apply for late submissions.

Penalties for late submission of assignments – In cases where an extension has NOT been granted, the following penalties will apply:

1. For assignments submitted after **4.00pm** on the due date, a penalty of 50% of the maximum marks available for that assignment will be incurred.
2. Assignments received two (2) or more days after the due date **will not be allocated a mark,** however, these assignments **must** still be submitted to pass the unit.

Assessment Task 1 – ONLINE QUIZZES (Wednesday Weeks 2, 4, 7, 10)

Online quizzes offered at the end of each block of lectures on the 4 main topics (respiratory disorders, metabolic disorders, cardiovascular disorders and immune disorders) to test your knowledge on the information delivered on these topics. Answers will need to be submitted through Moodle.

Assessment Task 2 – MID TERM EXAM (Week 5, Tuesday 19/03, 1pm)

This exam will test your knowledge on the diseases pathophysiology, the effects of exercise on the pathologies or symptoms and the potential interactions with medications in respiratory or metabolic disorders.

Assessment Task 3 – CLINICAL SKILLS ASSESSMENT (Weeks 7-8)

This assessment will evaluate your skills in performing critical clinical tasks during an exercise test. You will get the opportunity to perform practice runs before being assessed during lab 3. The skills you will be assessed on will be randomly assigned. The marking criteria for each skill can be found below.

Clinical Skills Assessment Form – HESC3541

Spirometry

Student's name: _____

Date: _____

Assessor: _____

_____

1. MEDICAL INTERVIEWING SKILLS (＿ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

2. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (＿ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

3. POSITIONING OF THE PATIENT / USAGE OF THE SPIROMETER (＿ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

4. ANALYSIS OF THE PERFORMANCE (＿ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

5. OVERALL CLINICAL COMPETENCE

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Spirometry

Descriptors of Competencies assessed

1. **Medical Interviewing Skills:** Facilitates patient's telling of story; effectively uses questions/directions to obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues. Identifies and explores the patient's issues and concerns within the scope of respiratory disorders.

2. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved in the spirometry. Communicate effectively with patient.

3. **Positioning of the patient / Usage of the spirometer:** Provide clear and appropriate instructions on the correct positioning of the patient during the test. Adequately demonstrate the correct usage of the spirometer.

4. **Analysis of the performance:** Effectively identify characteristic values. Appropriately analyse the shape of the curve. Clinically interpret the performance of the patient. Determine predictive maximal ventilation.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is not an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Blood pressure

Student's name: _____

Date: _____

Assessor: _____

---

1. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (_ Not Observed)

1	2	3		4	5	6		7	8	9
Unsatisfactory					Satisfactory				Superior	

2. CORRECT POSITIONING / ORGANISATION / EFFICIENCY (_ Not Observed)

1	2	3		4	5	6		7	8	9
Unsatisfactory					Satisfactory				Superior	

3. MONITORING OF THE HAEMODYNAMIC RESPONSE (_ Not Observed)

1	2	3		4	5	6		7	8	9
Unsatisfactory					Satisfactory				Superior	

4. INTERPRETATION OF THE RESULTS (_ Not Observed)

1	2	3		4	5	6		7	8	9
Unsatisfactory					Satisfactory				Superior	

5. OVERALL CLINICAL COMPETENCE

1	**2**	**3**		**4**	**5**	**6**		**7**	**8**	**9**
Unsatisfactory					**Satisfactory**				**Superior**	

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Blood pressure

Descriptors of Competencies assessed

1. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved. Communicate effectively with patient.

2. **Correct positioning of the Cuff / Sphygmomanometer / Organisation / Efficiency:** Appropriately position the apparatus and can describe critical aspects concerning the correct positioning of the patient. Prioritises; is timely, succinct

3. **Monitoring of the haemodynamic response:** Effectively perform assessment in a timely manner during each stage. Correctly identify normal haemodynamic response to exercise. Appropriately assess safety of pursuing the test based on the values collected in real time.

4. **Interpretation of the results:** Effectively analyse the data collected during the test and can assess the normality of the response.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is <u>not</u> an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Electrocardiography

Student's name: _____

Date: _____

Assessor: _____

---

1. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

2. CORRECT POSITIONING OF THE ELECTRODES (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

3. DETERMINATION OF THE HEART VECTOR (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

4. INTERPRETATION OF THE ECG TRACE (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

5. OVERALL CLINICAL COMPETENCE

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Electrocardiography

Descriptors of Competencies assessed

1. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved. Communicate effectively with patient.

2. **Correct positioning of the electrodes:** Effectively describe correct anatomical positioning of the electrodes and appropriately place them on the patient.

3. **Determination of the heart vector:** Use relevant data to effectively determine the heart vector. Clinically interpret its significance.

4. **Interpretation of the ECG trace:** Can describe strategy to systematically assess ECG trace. Can identify major cardiac abnormalities.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is <u>not</u> an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Gas analysis

Student's name: _____

Date: _____

Assessor: _____

---

1. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

2. ASSESSMENT OF RESTING VALUES (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

3. MONITORING OF CARDIO-RESPIRATORY RESPONSE DURING THE TEST (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

TERMINATION OF TEST AND INTERPRETATION OF RESULTS (_ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

5. OVERALL CLINICAL COMPETENCE

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Gas analysis

Descriptors of Competencies assessed

1. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved. Appropriately equip patient. Communicate effectively with patient.

2. **Assessment of resting values:** Adequately assess resting state of the patient based on respiratory values. Effectively determine the validity of the data collected.

3. **Monitoring of cardio-respiratory response during the test:** Effectively monitor cardio-respiratory response during the test. Achievement of steady states and timely progression to the next stage.

4. **Termination of the test and interpretation of the results:** Can appropriately determine that criteria for stopping the test have been reached. Effectively interpret the validity of the test.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is <u>not</u> an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Data analysis and Exercise Prescription

Student's name: _____

Date: _____

Assessor: _____

---

1. ASSESSMENT OF THE QUALITY OF THE DATA (__ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

2. DESCRIPTION OF THE METHODS TO DETERMINE THE VARIABLES (__ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

3. DETERMINATION OF THE VARIABLES OF INTEREST (__ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

4. PRESCRIPTION OF EXERCISE INTENSITY TO OPTIMISE FAT OXIDATION (__ Not Observed)

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

5. OVERALL CLINICAL COMPETENCE

    1   2   3 | 4   5   6 | 7   8   9
    Unsatisfactory   Satisfactory   Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Data analysis and Exercise Prescription

Descriptors of Competencies assessed

1. **Assessment of the quality of the data:** Adequately assess steady state of the patient based on respiratory values. Effectively determine the validity of the data collected.

2. **Description of the methods to determine the variables:** Describe the different steps involved in the determination of the cross over point and the lipoxmax.

3. **Determination of the variables of interest:** Effectively determine the cross over point and the lipoxmax.

4. **Prescription of exercise intensity to optimise fat oxidation:** Can appropriately determine the heart rate corresponding to the optimal intensity to prescribe exercise with the intent to oxidise fat. Select appropriate modalities and characteristics of exercise.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is <u>not</u> an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Assessment Task 4 – REPORT ON EXERCISE TESTING (Week 11, Friday 03/05, 4pm)

To be able to prepare this document you will need to submit your group of two students to the course co-convenor (matthew.jones@unsw.edu.au) by Friday 4pm in Week 4 (15/03/19). Failure to provide timely information concerning your group will result in a penalty of 25% on your mark for this assignment.
The data used to complete that document will be generated during labs 3 and 4. During those labs your performance in conducting the exercise testing will be assessed against set criteria described above.
Report will need to be submitted through Moodle by Friday at 4pm in week 11.

The report should be a 3 pages A4 PDF document and should be divided into 3 sections.

Anthropometry: - description of the pre-testing procedures: risk assessment, regular physical activity evaluation, spirometry, ECG/BP.
- presentation of the anthropometric measurements and tested resting values

Aerobic capacity: - description of the protocol: workload increments, parameters measured (methods of determination), precautions in the population
- analysis of the results, determination of the maximality of the test, VO2max, ventilatory threshold, double product break point. One graph per variable should be presented (VO2max, VO2VT, DBBP).

Metabolic test: - description of the protocol: workload increments, parameters measured (methods of determination), precautions in the population
- analysis of the results, determination of Cross over point and Lipoxmax (1 graph per variable) as well as total energy expenditure during the test.

Marking Criteria for the Report on Exercise Testing

Anthropometry (30 marks):   Anthropometry
Medical history / Lifestyle / Classification
Description of the pre-testing procedure and parameters measurement

Aerobic capacity (30 marks):   Description of the testing procedures
Method for determination of the different parameters
Analysis of the data collected and determination of specific parameters to determine physical capacity (VO2max, ventilatory threshold, double product break point)
Inclusion of pertinent graphs to support parameters determination

Metabolic test (30 marks):   Description of the testing procedures
Method for determination of the different parameters
Analysis of the data collected and determination of specific parameters to determine physical capacity (Cross Over Point, Lipoxmax)
Inclusion of pertinent graphs to support parameters determination

Document (10 marks):   Clear, concise and informative, creative, engaging and useful
Adapted to AEP audience, individualised testing procedure
Use of references that are fully quoted as footnotes
APA website for guidelines for referencing: http://www.apastyle.org/

Assessment Task 5 – FINAL EXAM

This exam will test your knowledge about the diseases pathophysiology, the effects of exercise of the pathologies or symptoms and the potential interactions with medications. It will also test your practical skills for testing patients, analysing the data obtained using the test, prescribing exercise using data from the tests and information from scientific literature.

Resources for students

See also Learning Resources on the SoMS website

Textbooks (Recommended)

Textbook 1: Brooks G.A., Fahey T.D. and Baldwin K.M. (2004). Exercise Physiology, human bioenergetics and its application. McGraw-Hill. 4th Ed.
Textbook 2: Hampton R.J. (2008). The ECG made easy. Churchill Livingstone Elsevier. 7th Ed.
Textbook 3: LeMura L.M. and von Duvillard S.P. (2004). Clinical Exercise Physiology: Application and Physiological Principles. Lippincott Williams and Wilkins. (Purchase at the bookshop, Also in special reserve)
Textbook 4: Ehrman J.K., Gordon P.M., Visich P.S. and Keteyian S.J. (2003). Clinical Exercise Physiology. Human Kinetics. (Purchase at the bookshop, Also in special reserve)
Textbook 5: American College of Sports Medicine (2006). ACSM's Guidelines for Exercise Testing and Prescription. Lippincott Williams and Wilkins. 7th Ed

Course evaluation and development

Every year, feedback from students is collected through the myExperience online survey. This evaluation and feedback are used to constantly improve the course content and make it more relevant to the students. Significant changes are then communicated to the following cohort of students.
This year additional material has been developed to better guide the learning experience during the labs and allow more focus on the clinical skills that needs to be developed during these classes.

Examination procedures and attendance requirements

Attendance is expected at all lectures, practicals and tutorials for this course. Attendance at all practicals, tutorials and clinicals will be recorded. Students who do not participate in these sessions for any reason other than medical or misadventure, will be marked absent and will be awarded a grade of FAIL for the entire course. If absent for medical reasons, a medical certificate must be lodged with the lecturer within 7 days of the time period of the certificate's expiry. No consideration will be given after this time. Although lectures will be available on EchoServer, student participation is encouraged in both the lectures and the tutorials and these are important to attend.

Deferred Exams
If you miss an exam for medical reasons you must supply adequate documentation (including a medical certificate). Your request for consideration will then be assessed and a deferred exam may be granted. You cannot assume you will be granted supplementary assessment. The deferred exam may include a significant oral element. ***It is intended that supplementary exams for School of Medical Sciences courses in Term 1 2019 will be held from 27/05-31/05, 2019.***

Course schedule

Week	Date	Lecture 1 Monday 1-2pm WW LG03	Lecture 2 Tuesday 1-2pm WW LG03	Lecture 3 Wednesday 10-11am WW LG03	Tutorial Monday 9-11am, 11-1pm, 2-4pm, 4-6pm WWG17	Laboratory Tuesday 2-4pm, 4-6pm; Thursday 2-4pm, 4-6pm; WWG29-30	Online
1	18/02-22/02	Asthma & COPD – **CH/DS**	Chronic obstructive pulmonary diseases - **DS**	Cystic fibrosis- **DS**			Respiratory diseases epidemiology
2	25/02-01/03	Rehabilitation in respiratory diseases - **DS**	Rehabilitation in respiratory diseases - **DS**	Insulin resistance and type 2 diabetes - **DS**	Exercise testing in clinical population	Pulmonary function assessment	Insulin resistance and T2DM epidemiology Quiz
3	04/03-08/03	Insulin resistance and type 2 diabetes - **DS**	T2D case study - **BP**	Rehabilitation in metabolic diseases - **DS**	ECG	Introduction to exercise testing	
4	11/03-15/03	Rehabilitation in metabolic diseases - **DS**	Endothelial dysfunction & Atherosclerosis **DS**	Peripheral arterial diseases - **BP**	Maximal exercise testing	Introduction to exercise testing	CVD epidemiology Quiz
5	18/03-22/03	Peripheral arterial diseases: case study - **BP**	Mid terrm exam (20%)	Hypertension - **DS**		Testing Aerobic capacity	
6	25/03-29/03	Hypertension case study- **BP**	Coronary artery diseases & Myocardial infarction - **DS**	Coronary artery diseases: case study - **BP**	Exercise testing in metabolic diseases	Testing Aerobic capacity	
7	01/04-05/04	Chronic heart failure - **DS**	Chronic heart failure - **DS**	Cancer: pathophysiology - **DS**		Testing metabolic adaptations Skills Assessment (15%)	Cancer epidemiology Quiz
8	08/04-12/04	Cancer: pathophysiology - **DS**	Rehabilitation in Cancer - **DS**	Rehabilitation in paediatric cancer - **CB**		Testing metabolic adaptations Skills Assessment (15%)	
9	15/04-19/04	Rehabilitation in Cancer - **DS**	Innate Immunity - **DS**	Adaptive Immunity - **DS**	Data Analysis		
10	22/04-26/04	Easter Monday	Immune system and exercise - **DS**	Immune system and exercise - **DS**			Quiz
11	29/04-01/05	HIV/AIDS - **DS**			Report preparation		Report (25%)

DS: A/Prof. David Simar, **CH**: Dr. Cristan Herbert, **BP**: Dr. Belinda Parmenter, **CB**: A/Prof. Carolyn Broderick.