Exercise Physiology Program
School of Medical Sciences
UNSW Medicine

HESC3208
Cancer Sciences for Exercise Physiology

Semester 2, 2014
Course Outline

Table of Contents

Staff Contact Details

Course Convenor Dr Fiona Naumann f.naumann@unsw.edu.au

Teaching Staff

Name	School	Role
A/Prof Jai-Lin Yang	School of Medical Sciences	Lowy Cancer Research centre
Dr Caroline Ford	School of Medical Sciences	Lowy Cancer Research centre
Prof Nick Hawkins	School of Medical Sciences	Head of School
Dr Patsie Polly	School of Medical Sciences	
A/Prof Noel Whitaker	School of Biotechnology and Biomolecular Sciences	Deputy Head of School
Prof Marc Wikins	School of Biotechnology and Biomolecular Sciences	Director NSW System Biology Initiative
Dr Louise Lutze-Mann	School of Biotechnology and Biomolecular Sciences	
Dr Helen Speirs	School of Biotechnology and Biomolecular Sciences	
Prof Robyn Ward	Prince of Wales Clinical School	Head of School
Prof Phillip Crowe	Prince of Wales Clinical School	Head of Department of Surgery
Prof Phillip Hogg	Prince of Wales Clinical School	Director of Lowy Cancer Research Centre
Prof David Goldstein	Prince of Wales Clinical School	Medical Oncologist
Prof Paul Thomas	Prince of Wales Clinical School	
A/Prof Michael Jackson	Prince of Wales Clinical School	Head of Radiation Oncology
A/Prof Claire Vajdic	Prince of Wales Clinical School	
A/Prof John Pimanda	Prince of Wales Clinical School	

Dr Anthony Don	Prince of Wales Clinical School	
Dr Carl Power	Prince of Wales Clinical School	Head Biomedical Resources & Imaging
Dr Barbara-Ann Adelstein	Prince of Wales Clinical School	
Dr Jason Wong	Prince of Wales Clinical School	
Dr Kerrie McDonald	Prince of Wales Clinical School	
Dr Luke Hesson	Prince of Wales Clinical School	
Dr Phoebe Phillips	Prince of Wales Clinical School	
Dr Melvin Chin	Prince of Wales Clinical School	Medical Oncologist
Dr Shing Wong	Prince of Wales Clinical School	
Dr Vivien Chin	Prince of Wales Clinical School	
Dr Sheri Nixdorf	Prince of Wales Clinical School	
Dr Robert Rapkins	Prince of Wales Clinical School	
Ms Meg Schneider	Prince of Wales Clinical School	
Ms Weini Samuel	Prince of Wales Clinical School	
Mr Simon Downes	Prince of Wales Clinical School	

Specialist Exercise Physiology Staff

Dr Fiona Naumann	UNSW Medicine, NSW Cancer Survivors Centre	AEP Lifestyle Clinic
Ms Carolina Sandler	UNSW Medicine, NSW Cancer Survivors Centre	AEP Lifestyle Clinic
Mr Michael Marthick	RPA, Chris O'Brien Lifehouse	AEP Lifehouse

Course details

Credit Points: 6 UOC

Offered: Semester 2, internal or external mode

Course Prerequisites / Assumed Knowledge

HESC3541 Clinical Exercise Physiology; PATH2202

Course Description

HESC3208 Cancer Sciences for Exercise Physiology is focussed on the assessment, design and delivery of exercise programs for cancer patients. For those wishing to pursue a career in exercise physiology in the oncology field, the course will emphasise cancer diagnosis, treatment and the application of exercise to improve the management of the disease. Students undertaking HESC3208 will gain a basic knowledge of cancer biology, including aetiology and risk factors. They will also learn the scientific rationale underpinning current and future practices in cancer management (diagnosis and treatment), and the concept of 'individualised' cancer medicine. At the same time, students will develop an understanding of the role exercise can play throughout the cancer journey, including pre-habilitation, during treatment, rehabilitation and during the palliative stage. This will include coverage of patient consultations and the design and delivery of exercise for cancer patients.

Aims of the Course

1. *To provide students with knowledge of cancer biology, including aetiology and risk factors.*
2. *To teach students the scientific rationale underpinning current and future practices in cancer management (diagnosis and treatment), and the concept of 'individualised' cancer medicine.*
3. *To develop skills on history taking of cancer patients and being able to recognise the implications of the history for exercise participation.*
4. *To gain knowledge and practical skills for assess the health and fitness of a cancer patient*
5. *To gain knowledge and skills on exercise programming and exercise delivery to improve the health and fitness of the cancer patient and potential management of cancer treatment.*

Student Learning Outcomes

This course will enable students to explore and gain an understanding of the current and future treatment of cancer. This course provides the fundamental knowledge and promotes the development of skills which will work towards the realisation of the overall Bachelor of Exercise Physiology program objectives and skills of an Exercise Physiologist.

At the end of the course you should be able to:

1. *Describe causes and risk factors for common cancers, and relate these to known pathogenetic mechanisms.*
2. *Describe current approaches to the diagnosis and treatment of common cancers*
3. *Work independently to identify and critically analyse articles from the current cancer research literature*
4. *Work as part of a team to conduct an effective oncology client consultation, gathering information on medical history, physical activity history and other relevant information which will inform exercise programming.*
5. *Demonstrate skill competency in being able to recognise the implications from a client consultation for exercise participation.*
6. *Work as part of a team to develop a comprehensive health and fitness assessment and exercise program for a client, using the information provided in the client consultation.*
7. *Communicate effectively through oral presentations their knowledge and understanding of a health and fitness assessment and exercise programming strategies to their peers*
8. *Effectively assess exercise programming presentations made by their peers.*
9. *Demonstrate an understanding and skill competency in assessing the health and fitness of a cancer patient*
10. *Demonstrate an understanding and skill competency in exercise programming and exercise delivery to improve the health and fitness of the cancer patient and potential management of cancer treatment.*

Graduate Attributes

The students will be encouraged to develop the following Graduate Attributes by undertaking the selected activities and knowledge content. These attributes will be assessed within the prescribed assessment tasks. At the conclusion of this course the student will be able to be:

- Understand the relationship between physical activity and chronic disease management
- Apply clinical skills and knowledge relevant to health and fitness assessments of cancer patients
- Engage in independent and reflective learning for the betterment of professional practice following an evidence-based approach
- Work as a member of a team
- 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 – The content allows students to develop a fundamental knowledge of the most recent techniques and discoveries in the management and treatment of cancer. The tutorial content also develops fundamental knowledge and skill competency on the role physical activity can play in the management of cancer. This forms the basis upon which the knowledge and skill competency enable an Exercise Physiologist to deliver lifestyle programs that use exercise with an aim of promoting rehabilitation and management of cancer. This course also enables students to develop the skills of communication and critical thinking. It reflects the position of the course convenor that their practice within the field will require these skills for ongoing development.

How the course relates to other courses in the Exercise Physiology program – The course will build upon material presented in earlier courses in the program, in particular Exercise Programs and Behaviour (HESC1511), as well as Clinical Exercise Physiology (HESC3541). The skills and knowledge developed in this course will provide a strong base in exercise physiology essential for the clinically oriented practicum courses in stage 4 (HESC4611 and HESC4622).

Teaching strategies

Lectures – Lecture notes are available in PDF format on Moodle:
http://lms-moodle.telt.unsw.edu.au/webapps/portal/frameset.jsp

Lectures are considered by the course convenor to be only a summary of the concepts and theory essential for meeting the course objectives and student learning outcomes outlined above. In order to do well in this course it is **ABSOLUTELY ESSENTIAL** that students make use of other resources such as the recommended and additional textbooks and Web based sources.

Practical's and Tutorials – Students are expected to behave in an ethical, socially responsible and professional manner within the practical and tutorial class. Punctual arrival is expected as important information including safety precautions are discussed at the beginning of each class and late students will be refused entry and marked as absent. Please turn-off mobile phones before entering class. The use of computers for work not related to the current laboratory is not permitted in class. Eating is not permitted, however students may bring drinking water in a suitable unbreakable container. Students are required to bring to class, a printed copy of the practical or tutorial which they are to download from MOODLE. It is recommended that students take the time to read the practical or tutorial before coming to the designated session.

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 a central teaching strategy in this course.

	Weight	**Due Date**
ASSESSMENT TASK 1 – END OF SESSION EXAMINATION	**40%**	Week 12
ASSESSMENT TASK 2 –ON-LINE LECTURE/ TUT QUIZZES	**20%**	Week 4 & 9
ASSESSMENT TASK 3 – GROUP ASSIGNMENT	**30%**	Week 10-12
ASSESSMENTTASK 4 – E-PORTFOLIO	**10%**	Week 12

Assessment Task 1 – *END OF SESSION EXAM*

The END OF SEMESTER EXAM is a written exam comprised of multiple choice and/or short answer questions. It will cover lecture, tutorial and practical material from weeks 1-9. It will be held in week 12 during the lecture timeslot, and is of 1 hour duration (writing time). No extra time will be given to a student who have arrived late to sit the exam.

Assessment Task 2 – *ON-LINE LECTURE & TUTORIAL QUIZZES*

A 15 minute quiz at the start of tutorial 4 & 9 will be conducted on-line. It will cover the learning outcomes from the previous lectures, tutorials and practical's.

Assessment Task 3 – *GROUP ONCOLOGY CONSULTATION AND EXERCISE PROGRAMMING ASSIGNMENT*

The goal of the group assignment report and presentation is to enable and consolidate learning by doing. The students will be required to work in groups of 4, to conduct a client consultation and patient management plan for cancer patient. The assignment needs to include:

a) a brief introduction to the cancer
b) the completion of a patient consultation to review the patient's cancer, its treatment and other relevant medical history

c) documented evidence of the client consultation
d) the identification of the issues associated with this cancer which will be relevant and must be considered when designing a suitable exercise program.
e) the design of an assessment protocol that addresses the potential issues identified in the patient consultation.
f) Finally, the students must design an exercise program that focusses on the specific exercise needs of the client. Any rehabilitation associated with surgery must be a priority. Other components could include cardiovascular training, strength training and balance training.

Assessing this learning can enhance:
1. the student's conceptual understanding of the theory-practice relationship
2. their higher level reasoning skills
3. the development of their exercise physiology practical competence
4. the development of teamwork

Marking Criteria for the Group Assignments

Assignment Criteria	Developing (Not Yet Competent)	Basic Competence	Competent	Advanced Competence
Introduction to the Cancer & Its Treatment • Introduction of the important facts associated with the cancer.	* Was not yet able to provide a summary of the important details and facts associated with the selected cancer type.	* Was able to provide a summary of the important details and facts associated with the selected cancer type.	* Was able to provide an analysis of the important details and facts associated with the selected cancer type.	* Was able to provide a detailed analysis of the important details and facts associated with the selected cancer type.
Patient Consultation • Participant details were outlined. • A comprehensive patient oncology history was taken. • Side effects of the cancer treatment were documented. • A comprehensive patient medical history was taken, including comorbidities and medications. • A comprehensive documentation of physical activity and exercise habits was completed.	* was not yet able to provide detail of the participants * was not able to provide a detailed oncology history * was not able to detail the side effects of cancer treatment * was not able to provide a detailed medical history * was not able to provide a detailed PA history.	* Demonstrated an ability to provide some demographic data for the participant * was able to provide some details of the oncology history * was able to document the side effects of cancer treatment * was able to document a medical history * was able to document PA history.	* Demonstrated an ability to provide demographic data for the participants * was able to provide documentation of the client's oncology history * was able to document the side effects of cancer treatment * was able to provide a medical history * was able to document PA history.	* Demonstrated an ability to provide detailed * provided a detailed documentation of the clients oncology diagnosis and treatment. * was able to fully document ALL side effects of the cancer and its treatment ** was able to provide a detailed and logical medical history * was able to document a comprehensive PA history.
Construction of a Physiological Assessment • Physiological capacity assessment was developed from the patient consultation sheet	* was not able to develop a comprehensive physiological patient assessment sheet from the information provided in the consultation.	* was able to develop a physiological patient assessment sheet	* was able to develop a physiological patient assessment sheet from the information provided in the consultation.	* was able to develop a comprehensive physiological patient assessment sheet from the information provided in the consultation.
Identification of Key Issues of the Cancer • Identification of the issues associated with the selected cancer, which must be considered when engaging in exercise programming.	* was not able to identify the key issues relevant to the selected cancer which need to be identified when designing exercise programs.	* was able to identify the basic issues relevant to the selected cancer which need to be identified when designing exercise programs.	* was able to identify the key issues relevant to the selected cancer which need to be identified when designing exercise programs.	* was able to identify ALL key issues relevant to the selected cancer which need to be identified when designing exercise programs.

Exercise Programming Specific to the Cancer • Based on the information obtained in the patient consultation, a detailed exercise program was developed. • The key components of the exercise program were included – such as cardiovascular, strength, balance and cancer specific rehabilitation. • A pdf exercise program was developed for use by the participant.	*was not able to develop an appropriate exercise programs for the needs of the client. * was not able to include all of the necessary exercise program components * was not able to develop an exercise program using the on-line exercise programming program.	*was able to develop an appropriate exercise programs for the needs of the client. * was able to include some of the necessary exercise program components * was able to develop a brief exercise program using the on-line exercise programming program.	*was able to develop an appropriate exercise programs for the needs of the client. * was able to include most of the necessary exercise program components * was able to develop an exercise program using the on-line exercise programming program.	*was able to develop a comprehensive exercise programs for the needs of the client. * was able to include ALL of the necessary exercise program components * was able to develop a comprehensive exercise program using the on-line exercise programming program.
Reference, Grammar, Spelling and Overall Presentation. • APA reference format used in report. • Statements and information in the body of the report referenced. • Adequate number of scientific articles in support of findings • References relevant to topic and current. • Report grammatically correct, with correct spelling • Report professionally presented.	* Aspects of APA style demonstrated but lacked consistency. * was unable to provide evidence of scientific journal references. * was not yet able to produce a grammatically correct, with correct spelling. * not yet able to present a professional report.	* Aspects of APA style demonstrated but lacked consistency. * provided limited evidence of scientific journal references. * was able to produce a grammatically correct, with correct spelling, with only some inconsistency. * demonstrated a basic professional report	* Correct use of APA format throughout report. * statements and concepts were correctly referenced throughout body of writing. * Used relevant scientific journals * Report grammatically correct, correct spelling and professional presentation	* correct use of APA format throughout entire report. * Every statement and concept correctly referenced throughout body of writing. * Used relevant scientific journals * demonstrated use of current journals and references. * Demonstrated an ability to source the latest research in the field. * Report grammatically correct, professional presentation, and correct spelling.

Submission of Assessment Tasks
Group assignments are to be submitted as an electronic version via MOODLE (Turn it in).

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

- For laboratories submitted after **9.00am** on the due date, a penalty of 50% of the maximum marks available for that assignment will be incurred.
- Assignments received two (2) or more days after the due time/date **will not be allocated a mark,** however, these assignments **must** still be submitted to pass the unit.

Assessment Task 4 – *E-PORTFOLIOS*

The ePortfolio is a student self-created and self-managed digital framework where a student will present learning information, achievement and evidence, as well as reflective learning during the session within the course and across courses. The e-Portfolio with include a reflection of the patient consultation (what did you learn from the experience), the design and justification of the health and fitness assessment protocols and a copy of the exercise programs developed for your cancer patient. This work will be assessed and account for 10% of the final course mark.

Academic honesty and plagiarism

Plagiarism is using the words or ideas of others and presenting them as your own. Plagiarism is a type of intellectual theft and is regarded by the university as academic misconduct. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. The University has adopted an educative approach to plagiarism and has developed a range of resources to support students. The Learning Centre can provide further information via http://www.lc.unsw.edu/plagiarism.

Curriculum Structure

Lectures will be delivered live and can be reviewed on-line and viewed at the participants' convenience. There will be approximately 3 lectures uploaded per week, across 8 weeks. Lectures will provide a compressive coverage of:

- Lecture Module 1: Introduction to Cancer Biology
- Lecture Module 2: Coverage of Common Cancers
- Lecture Module 3: Molecular techniques in oncology
- Lecture Module 4: Targeted cancer therapies
- Lecture Module 5: Cancer Treatment – surgery, radiation, chemotherapy

Practical – Students are expected to attend practical sessions, covering the role of exercise in the management and recovery from cancer treatment.

- Workshop Module 1: Exercise and Cancer
- Workshop Module 2: Oncology Patient Consultations
- Workshop Module 3: Health and Fitness Assessments for oncology patients
- Workshop Module 4: Exercise Programming for cancer management and rehabilitation
- Workshop Module 5: Specialised Exercise Programming – neuropathy, neuropathy, fatigue

Course schedule HESC 3208, 2014

Wk	Wk	Lecture 1 (1 hr)	Lecture 2 (1 hr)	Lecture 3 (1 hr)	Tutorial (1 hr)	Practical (2 hrs)
1	29rd July	L1.Overview of HESC 3208	L2. Current progress in cancer biology	L3. Colorectal cancer	**Introduction** to the course assessment Introduction to the Group Assignment	No PRAC
2	5th Aug	L4. Breast cancer	L5. Ovary cancer	L6. Lung cancer	**Exercise and Cancer** Position Stands. What do we know about exercise & cancer?	**PRAC A**: Introduction to e-Portfolio Being a Reflective Practitioner
3	12th Aug	L7. Pancreatic cancer	L8. Prostate cancer	L9. Sarcoma	**Treatment Related Side Effects** – Implications for Exercise Participation	**PRAC B**: Clinical oncology consultations – determining the implications for exercise engagement.
4	19th Aug	L10. Glioblastoma	L11. Cancer & Coagulation	L12. Common Lab Techniques	**On-Line QUIZ 1 Assessment** of Physical Activity Levels, IPAQ, QoL & sleep efficiency in cancer patients.	**PRAC C:** Introduction to the virtual patient and on-line case management. The patient consultation.
5	26th Aug	L13. Advanced molecular techniques	L14. Inherited cancer risk	L15. Stem cells & cancer Cancer cell metabolism	**Exercise Programming** for Oncology. Components of Prescription & Behaviour Change Model.	**PRAC D:** Health & Fitness Assessments for Oncology Patients
6	2nd Sept	L16. Animal models in cancer research	L17. No Lecture	L18. Epidemiology, Environment & Cancer	**Mechanisms of benefit** of Exercise on tumor biology & pathophysiology	**PRAC E:** Introduction to on line exercise programming
7	9th Sept	L19. Biomarkers in diagnosis & therapy	L20. Clinical trials designed	L21. Targeted & anti-metabolic cancer therapies	**Specialised Programming** for Neuropathy, Myopathies & Lymphodema	**PRAC F:** On-line exercise programming session
8	16th Sept	L22. Nano-oncology and theranostics	L23. Surgery	L24. Radiotherapy	**Post Cancer Fatigue**	**PRAC G:** Visit Chris O'Brien Lifehouse. Cancer Survivor Centre

9	23rd Sept	L25. Chemotherapy			**On-Line QUIZ 2** Group Presentation Consultations with Tutor	**PRAC H:** Surgery POWH Clinical School
		Mid Semester Break				
10	7th Oct	Group Presentation 1	Group Presentation 2	Group Presentation 3	e-Portfolio Session	**PRAC I:** Radiation Therapy Practices (1/2 group) *
11	14th Oct	Group Presentation 4	Group Presentation 5	Group Presentation 6	**e-Pertfolio DUE**	**PRAC I**: Radiation Therapy Practices (1/2 group) *
12	21st Oct	**End of Course Exam** On-line				**PRAC J**: Yoga and Meditation for Oncology Patients

Please note that there may be some slight alterations to the above schedule.

- Please note that the visit to the oncology radiation department can only occur on a Friday afternoon, due to access to an operational department of the hospital.

Resources for students

Moodle

Information about the course and a number of electronic study resources can be accessed via the UNSW Moodle system. Moodle is an internet-based set of Course Tools designed to enable online learning.

You can use Blackboard to download lecture notes, access your grades, find reference material in the course (such as this document), and communicate with the lecturer and your peers. Please see the lecturer if you would like more information to help you to make the most of this resource.

UNSW Library

The University Library provides a range of services to assist students in understanding how to identify what information is required for assignments and projects; how to find the right information to support academic activities; and how to use the right information most effectively.
http://www.library.unsw.edu.au

Textbooks

- Irwin, M (2012). **ACSM's Guide to Exercise and Cancer Survivorship** Human Kinetics.
- Weinbery R.A. (2007) **The Biology of Cancer.** Garland Science, Taylor & Francis Group.

Suggested Reference Books

- **American College of Sport Medicine (2010)** ACSM guidelines for exercise testing and prescription. (8th edition) Lippincott, Williams and Wilkins, Philadelphia, USA.

Course evaluation and development

Each year feedback is sought from students about the courses offered in Exercise Physiology and continual improvements are made based on this feedback. The Course and Teaching Evaluation and Improvement (CATEI) Process of UNSW is the method used for the collection of feedback. At the end of the semester students will be asked by UNSW to provide feedback on HESC3208. Significant changes are then communicated to the following cohort of students.

Health and Safety

Class activities must comply with the NSW Occupational Health & Safety Act 2000 and the Occupational Health & Safety (OHS) Regulations 2001. It is expected that students will conduct themselves in an appropriate and responsible manner in order not to breach OHS regulations. Further information on relevant OHS policies and expectations is outlined at: http://www.hr.unsw.edu.au/ohswc/ohs/ohs_policies.html
All students must come prepared for active participation in laboratories. No open footwear is permitted. No consumption of food is permitted in class.

Examination procedures and attendance requirements

Attendance is expected at all lectures, practicals and tutorials for this course. Attendance at all practicals, and tutorials 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 Moodle, 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.

Special consideration in the event of illness or misadventure

If you believe that your performance in a course, either during session or in an examination, has been adversely affected by sickness, misadventure, or other circumstances beyond your control, you should notify

the Registrar and ask for special consideration in the determination of your results. Such requests should be made as soon as practicable after the problem occurs. **Applications made more than three working days after the relevant assessment will not be accepted except in TRULY exceptional circumstances.**

When submitting a request for special consideration you should provide all possible supporting evidence (eg medical certificates) together with your student number and enrolment details. Consideration request forms are available from Student Central in the Chancellery or can be downloaded from the web page linked below.

Note that normally, if you miss an exam (without medical reasons) 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 timetables and ensure that you arrive on time.

Students who apply for consideration to Student Central must also contact the Course Convenor immediately.

All applications for Special Consideration will be processed in accordance with UNSW policy (see: http://my.unsw.edu.au/student/atoz/SpecialConsideration.html). If you miss an assessment and have applied for Special Consideration, this will be taken into account when your final grade is determined. You should note that marks derived from completed assessment tasks may be used as the primary basis for determining an overall mark. Where appropriate, supplementary examination may be offered, but only when warranted by the circumstances.

Student equity and diversity issues
Students requiring assistance are encouraged to discuss their needs with the course convenor prior to, or at the commencement of the course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (EADU) (9385 4734). Further information for students with disabilities is available at http://www.studentequity.unsw.edu.au/disabil.html