

University of Otago  
School of Physical Education, Sport and Exercise Sciences

## **PHSE 509 Cardiac Rehabilitation**

Course Outline

**Instructor:** Dr Sandy Mandic

**Lecture Time:** Monday, 09:00 am to 10:50 am; Tuesday, 12:00 pm to 12:50 pm

**Location:** School of Physical Education, Sport and Exercise Sciences,  
665 Cumberland Street, 101 Seminar Room

**Laboratories:** Wednesday, 2:00 pm to 3:50 pm  
School of Physical Education, Sport and Exercise Sciences  
Room G112 Cardiac Rehabilitation Laboratory, 55 Union St West, OR  
Old PE Gym, 665 Cumberland St, OR  
665 Cumberland Street, 101 Seminar Room

**Office Hours:** Monday, 11:00 am to 11:50 am; Tuesday, 11:00 am to 11:50 am

**Office:** 55 Union Street West, Room #109

**E-mail / Phone:** [sandra.mandic@otago.ac.nz](mailto:sandra.mandic@otago.ac.nz) / 03 479 5415

**Teaching Assistant:** [To be announced]

**E-mail / Phone:** [To be announced] / [To be announced]

**Office:** [To be announced]

**Office hours:** [To be announced]

### **Course Description**

PHSE 509 Cardiac Rehabilitation paper is designed to explore fundamentals of cardiac rehabilitation and clinical exercise physiology. The course will provide an overview of cardiac rehabilitation programmes, fundamentals of clinical exercise physiology, review of pathophysiology of cardiovascular disease, insight in the multidisciplinary nature of cardiac rehabilitation, and extensive theoretical experience in clinical exercise testing and designing exercise programmes for individuals with cardiovascular disease. The content will be delivered through a combination of classroom sessions, seminars, laboratory sessions, and a field trip. Acquired knowledge will be evaluated through students' presentations and written assessments including mid-term exam, literature review and article critique.

**Prerequisites:** PHSE 311, 315 (Co-requisite)  
**Restrictions:** PHSE 409

### **Course Objectives**

1. Develop appreciation for the pathophysiology and treatment options in individuals with cardiovascular disease.
2. Develop an understanding of modern cardiac rehabilitation programmes.
3. Critically examine the multidisciplinary approach and education components of cardiac rehabilitation programmes.
4. Develop understanding of clinical exercise testing protocols, procedures and interpretation of results.

5. Introduce fundamentals of electrocardiography.
6. Provide extensive theoretical experience in designing exercise programmes for individuals with cardiovascular disease.
7. Critically examine evidence and existing research in a cardiac rehabilitation field.

### **Content/Learner Objectives**

At the end of this course you will be able to:

1. Understand fundamentals of pathophysiology and treatment of cardiovascular disease including arteriosclerosis, coronary artery disease, myocardial infarction, congestive heart failure and heart transplant.
2. Identify goals, phases and services provided by cardiac rehabilitation programmes.
3. Critically examine a role of comprehensive cardiac rehabilitation programmes in secondary prevention of cardiovascular disease.
4. Demonstrate knowledge of relevant protocols, procedures and results interpretation used in clinical exercise testing.
5. Demonstrate basic understanding of electrocardiography.
6. Describe common cardiac medications prescribed for individuals with cardiovascular disease and discuss their effects on heart rate, blood pressure, and exercise capacity.
7. Demonstrate knowledge in designing comprehensive exercise programmes for individuals with cardiovascular disease, taking into account special considerations for each population.
8. Critically examine the multidisciplinary nature of comprehensive cardiac rehabilitation programmes and understand the roles of different health professionals.

### **Course Format**

This course will consist of a combination of lectures, seminars, laboratories and field trips with hands-on clinical experiences.

#### **Lectures and Seminars**

School of Physical Education, Sport and Exercise Sciences

665 Cumberland Street, 101 Seminar Room

Monday, 9:00 am to 10:50 am

Tuesday, 12:00 pm to 12:50 pm

(Due to laboratory space availability, some lectures and seminars will be held during regular laboratory time on Wednesday, 2:00 pm to 3:50 pm).

#### **Laboratory Sessions**

School of Physical Education, Sport and Exercise Science

665 Cumberland Street, Old PE Gym

665 Cumberland Street, 101 Seminar Room

55 Union Street West, G111

Wednesday from 2:00 pm to 3:50 pm

(Due to laboratory space availability, some laboratories will be held during regular lecture times on Mondays or Tuesdays).

## **Field Trip**

A field trip to a community-based cardiac rehabilitation programme located in Dunedin Hospital (the Otago Phoenix Club) is a mandatory component of this paper. Each student will sign up to go on this field trip on one of the scheduled dates. This field trip will be led by a teaching assistant with 3 to 4 students in each group.

- Weeks 2, 3, 4, or 5
  - Monday, 6:30 pm to 8:30 pm
  - Thursday, 6:30 pm to 8:30 pm

## **Course Content: Modules**

### **Module 1: Pathophysiology and Treatment of Cardiovascular Disease**

Objective: Develop appreciation for the pathophysiology and treatment options in individuals with cardiovascular disease.

M1 Lecture 1: Introduction to cardiovascular disease

M1 Lecture 2: Epidemiology of cardiovascular disease

M1 Lecture 3: Cardiovascular risk factors

M1 Lecture 4: Pathophysiology and treatment of cardiovascular disease

### **Module 2: Cardiac Rehabilitation**

Objectives: 1) Develop an understanding of modern cardiac rehabilitation programmes and 2) Critically examine the multidisciplinary approach and education components of cardiac rehabilitation programmes.

M2 Lecture 1: Cardiac rehabilitation overview

M2 Lecture 2: Cardiac rehabilitation: Phases and education

M2 Lecture 3: Management of cardiovascular risk factors in cardiac rehabilitation

M2 Lecture 4: Exercise prescription for cardiac patients

M2 Lecture 5: Exercise prescription for a cardiac patient: Case Study

### **Module 3: Clinical Exercise Testing**

Objectives: 1) Develop understanding of clinical exercise testing protocols, procedures and interpretation of results and 2) Introduce fundamentals of electrocardiography.

M3 Lecture 1: Clinical exercise testing: Purpose, modalities and protocols

M3 Lecture 2: Clinical exercise testing: Procedures and interpretation

M3 Lecture 3: Introduction to electrocardiography

M3 Lecture 4: Cardiac medications

### **Module 4: Prescribing Exercise for Cardiac Patients**

Objective: Provide extensive theoretical experience in designing exercise programmes for individuals with cardiovascular disease.

M4 Lecture 1: Cardiac rehabilitation after myocardial infarction  
M4 Lecture 2: Cardiac rehabilitation in patients with angina  
M4 Lecture 3: Cardiac rehabilitation in patients with percutaneous coronary interventions and coronary artery bypass surgery  
M4 Lecture 4: Cardiac rehabilitation in heart failure: Pathophysiology  
M4 Lecture 5: Cardiac rehabilitation in heart failure: Exercise guidelines  
M4 Lecture 6: Cardiac rehabilitation after heart transplant  
M4 Lecture 7: Multidisciplinary approach to cardiac rehabilitation  
M4 Lecture 8: Case study (Cardiac rehabilitation phases)

### **Module 5: Special Topics (Students' Presentations)**

Objective: Critically examine evidence and existing research in a cardiac rehabilitation field.

Special topics schedule will be updated after all students have chosen their topics and presentation dates.

### **Seminars**

Seminar 1: Cardiac rehabilitation research at Otago  
Seminar 2: Beginnings of cardiac rehabilitation in Dunedin  
Seminar 3: National Heart Foundation of New Zealand  
Seminar 4: Role of physiotherapist in cardiac rehabilitation

\*Please note that seminar topics and schedule is subject to guest speakers' availability.

### **Laboratories**

Lab 1: Community-based cardiac rehabilitation exercise session

- In this laboratory, students will experience a typical exercise session in a community-based maintenance cardiac rehabilitation programme.

Lab 2: Assessment of physical function

- In this laboratory, students will gain hands-on experience in performing common physical function tests for cardiac patients including six-minute walk test, shuttle walk test, chair stand test, hand-grip strength test and balance tests. Students will also practice taking anthropometry measurements, performing bio-impedance assessment of body composition and taking blood pressure at rest.

Lab 3: Electrocardiography

- In this laboratory, students will learn the fundamentals of recognising abnormal ECG patterns commonly observed during exercise in cardiac patients. Students will also have an opportunity to gain hands-on experiences of placing the electrodes for a 12-lead ECG.

Lab 4: Clinical exercise testing

- In this laboratory, students will gain hands-on experience in setting up a participant and conducting clinical exercise testing with expired gas analysis and 12-lead ECG monitoring.

### Lab 5: Patients' experiences with cardiovascular disease and cardiac rehabilitation

- In this laboratory, students will have an opportunity to speak to four to five members of the community-based cardiac rehabilitation programme about their experiences with the cardiac event and cardiac rehabilitation.

### PHSE 509 Lecture Schedule

Week	Day	Topic	Lecturer
<b>1</b>	Mon (2h)	L00: Introduction to course and logistics	SM
		<b>Lab 1: Community cardiac rehabilitation – Exercise session</b>	[TA]
	Tue (1h)	M1 Lecture 1: Introduction to cardiovascular disease	SM
	Wed (2h)	M1 Lecture 2: Epidemiology of cardiovascular disease M1 Lecture 3: Cardiovascular risk factors	SM SM
<b>2</b>	Mon (2h)	<b>Lab 2: Assessment of physical function</b>	[TA]
	Tue (1h)	M2 Lecture 2: Cardiac rehabilitation: Phases and education	LB
	Wed (2h)	M2 Lecture 1: Cardiac rehabilitation overview	SM
		M2 Lecture 3: Management of cardiovascular risk factors in cardiac rehabilitation	SM SM
<b>3</b>	Mon (2h)	M2 Lecture 4: Exercise prescription for cardiac patients M2 Lecture 5: Case Study	SM SM
	Tue (1h)	M3 Lecture 1: Clinical exercise testing: Purpose, modalities and protocols	SM
	<b>4</b>	Mon (2h)	M1 Lecture 4: Pathophysiology and treatment of cardiovascular disease
Tue (1h)		M3 Lecture 2: Clinical exercise testing: Procedures and interpretation	SM
Wed (2h)		M3 Lecture 3: Introduction to electrocardiography <b>Lab 3: Electrocardiography</b>	LB
<b>5</b>	Mon (2h)	<b>Lab 4: Clinical exercise testing (Group 1)</b>	SM
	Tue (1h)	M3 Lecture 4: Cardiac medications	SM
	Wed (2h)	<b>Lab 4: Clinical exercise testing (Group 2)</b>	SM
<b>6</b>	Mon (2h)	M4 Lecture 1: Cardiac rehabilitation after myocardial infarction M4 Lecture 2: Cardiac rehabilitation in patients with angina	SM SM
	Tue (1h)	M4 Lecture 3: Cardiac rehabilitation in patients with percutaneous coronary interventions and coronary artery bypass surgery	SM
	<b>7</b>	Mon (2h)	M4 Lecture 4: Cardiac rehabilitation in heart failure: Pathophysiology M4 Lecture 5: Cardiac rehabilitation in heart failure: Exercise guidelines
Tue (1h)		M4 Lecture 6: Cardiac rehabilitation after heart transplant	SM
<b>8</b>		Mid-semester break – No classes	
<b>9</b>	Mon (2h)	M4 Lecture 7: Multidisciplinary approach to cardiac rehabilitation M4 Lecture 8: Case study (Cardiac rehabilitation phases)	SM SM
	Tue (1h)	Course material review 1	SM
	Wed (2h)	<b>Term Test</b>	SM
	<b>10</b>	Mon (2h)	<b>Student presentations: 1, 2</b>
		Seminar 1: Cardiac rehabilitation research at Otago	SM
Tue (1h)		Seminar 2: Beginnings of cardiac rehabilitation in Dunedin	ERN
<b>11</b>	Mon (2h)	<b>Lab 5: Patients' experiences with cardiovascular disease and</b>	SM

<b>cardiac rehabilitation</b>			
	Tue (1h)	<b>Student presentations: 3, 4</b>	SM
<b>12</b>	Mon (2h)	<b>Student presentations: 5, 6</b> Seminar 3: National Heart Foundation of NZ	SM JA
	Tue (1h)	<b>Student presentations: 7, 8</b>	SM
<b>13</b>	Mon (2h)	<b>Student presentations: 9, 10</b> Seminar 4: Role of physiotherapist in cardiac rehabilitation	SM DB
	Tue (1h)	<b>Student presentations: 11, 12; Article critique due</b>	SM
	Wed (2h)	<b>Student presentations: 13, 14</b>	SM
		<b>Student presentations: 15, 16</b>	SM
<b>14</b>	Mon (2h)	<b>Student presentations: 17, 18</b> <b>Student presentations: 19, 20</b>	SM SM
	Tue (1h)	Course material review; <b>Literature review due</b>	SM

**Note:** Subject to change due to guest speakers' availability.

Guest speakers and teaching assistants: JA, Jo Arthur LB, Leanne Barclay; DB, Dianne Body; ERN, Edwin R. Nye; [TA], Teaching assistant (to be announced); MW, Michael Williams.

## Teaching and Learning Approaches

As a part of this course, you will participate in classroom sessions, seminars, in-class activities, laboratories, and a field trip with hands-on clinical experiences and work on case studies. Although your **attendance and participation in the lectures and seminars** is not compulsory, it **is strongly recommended**. **Attendance of laboratory sessions and a field trip is mandatory**. Effective listening and note taking is important for gaining a full understanding of course material. Therefore, we advise you to attend all lectures, laboratories and a field trip.

Reading lecture material prior to the lecture, seminar and laboratory will facilitate your learning and prepare you better for participating in class activities. We recommend that you form study groups of two or three where you can discuss the ideas and concepts you are learning with others. Discussion helps understanding and application of the course material in different situations. Your study group will be helpful for peer-marking of your essays and presentations and to providing constructive feedback.

## Teaching / Learning Resources

**Lecture Handouts:** Lecture handouts will be provided for you on Blackboard. The handouts will list the learning outcomes of the lecture, and provide copies of the lecture slides and space for you to write notes.

It is your responsibility to download the lecture handout **PRIOR TO** the lecture and bring it with you to the lecture (either as a hard copy or an electronic copy). All lecture handouts posted on Blackboard contain gaps that you will be required to fill in during the lecture.

You will have an option to download and print all lecture handouts at once at the beginning of the course. Please note that handouts for seminars and guest lecturers will be posted on Blackboard 3-4 days before each seminar.

For every lecture, a handout with full lecture slides will become available on Blackboard at 2 pm on the same day (at 5 pm on Wednesdays) under the relevant folder. This file with full lecture slides will remain on Blackboard until the midnight on Friday of the same week. It is your responsibility to check and/or download this file with full lecture slides each week while those files are available. Please note that these files will NOT be available later in the semester.

**Web Resources:** Lecture handouts, readings and supplementary material will be available on Blackboard.

## Use of Blackboard Learning Platform

Blackboard is a web-based learning platform that we use to help manage teaching and learning in the course. On Blackboard you will find resource material, lecture handouts, and readings.

To access these pages, go to the Blackboard home page by following these steps:

1. Click on to your browser, for example Internet Explorer or Mozilla.
2. Go to the University Homepage: <http://www.otago.ac.nz/> and click on Blackboard (in 'Quickfind' at top of third column on yellow band at the bottom of the Homepage). Alternatively, go to: <http://blackboard.otago.ac.nz>
3. You will be asked to Login by typing in your username and password (use your university-wide Student ID and password). Once you have logged in you will find yourself on your personal Blackboard page.
4. On the right hand side of the site you will see the heading 'My Courses'. All the papers in which you are enrolled should be listed. Click on this button.
5. Once you are in the website bookmark it or add it to your 'favourites'. If you have any problems with Blackboard please contact Student IT Services (<https://blogs.otago.ac.nz/sits/>)

## Readings

### Highly Recommended Text

ACSM's Guidelines for Exercise Testing and Prescription. (9<sup>th</sup> edition) (2014). Editors: Linda S Pescatello; Ross Arena; Deborah Riebe; Paul D Thompson; American College of Sports Medicine. Philadelphia : Wolters Kluwer Health/Lippincott Williams & Wilkins

### Required and Suggested Readings

Below is a list of required readings. All readings will be available on Blackboard. Students are expected to read lecture material **PRIOR TO** the lecture and come to class prepared to participate in discussions. Specific readings for each lecture are listed below.

<b>Module/ Lecture</b>	<b>PHSE 509 Required and Suggested Readings</b>
<b>Module 1</b>	<b>Pathophysiology and Treatment of Cardiovascular Disease</b>
M1: Lecture 1	<b>Required:</b> Piotrowicz, R., & Wolszakeiwics, J. (2008). Cardiac rehabilitation following myocardial infarction. <i>Cardiol J</i> , 15(5), 7. <b>Suggested:</b> Self-directed review of cardiovascular physiology
M1: Lecture 2	<b>Required:</b> Myers, J. (2003). Cardiology patient pages. Exercise and cardiovascular health. <i>Circulation</i> , 107(1), e2-5.
M1: Lecture 3	<b>Required:</b> Thompson, P. D., Buchner, D., Pina, I. L., Balady, G. J., Williams, M. A., Marcus, B. H., et al. (2003). Exercise and physical activity in the prevention and treatment of atherosclerotic cardiovascular disease: a statement from the Council on Clinical Cardiology (Subcommittee on Exercise, Rehabilitation, and Prevention) and the Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity). <i>Circulation</i> , 107(24), 3109-3116. <b>Suggested:</b> New Zealand Guidelines Group. New Zealand Primary Care Handbook 2012. Chapter 1. 3rd ed. Wellington: New Zealand Guidelines Group; 2012.
M1: Lecture 4	<b>Required:</b> Michaels, A. D., & Chatterjee, K. (2002). Cardiology patient pages. Angioplasty versus bypass surgery for coronary artery disease. <i>Circulation</i> , 106(23), e187-190. <b>Required:</b> Stern, S., Behar, S., & Gottlieb, S. (2003). Cardiology patient pages. Aging and diseases of the heart. <i>Circulation</i> , 108(14), e99-101.
<b>Module 2</b>	<b>Cardiac Rehabilitation</b>
M2: Lecture 1	<b>Required:</b> Ades, P. A. (2001). Cardiac rehabilitation and secondary prevention of coronary heart disease. <i>N Engl J Med</i> , 345(12), 892-902. <b>Required:</b> Balady, G. J., Williams, M. A., Ades, P. A., Bittner, V., Comoss, P., Foody, J. M., et al. (2007). Core components of cardiac rehabilitation/secondary prevention programmes: 2007 update: a scientific statement from the American Heart Association Exercise, Cardiac Rehabilitation, and Prevention Committee, the Council on Clinical Cardiology; the Councils on Cardiovascular Nursing, Epidemiology and Prevention, and Nutrition, Physical Activity, and Metabolism; and the American Association of Cardiovascular and Pulmonary Rehabilitation. <i>Circulation</i> , 115(20), 2675-2682.
M2: Lecture 2	<b>Required:</b> Piepoli, M. F., Corra, U., Benzer, W., Bjarnason-Wehrens, B., Dendale, P., Gaita, D., et al. Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. <i>Eur J Cardiovasc Prev Rehabil</i> , 17(1), 1-17.

M2: Lecture 3	<b>Required:</b> Thompson, P. D., Buchner, D., Pina, I. L., Balady, G. J., Williams, M. A., Marcus, B. H., et al. (2003). Exercise and physical activity in the prevention and treatment of atherosclerotic cardiovascular disease: a statement from the Council on Clinical Cardiology (Subcommittee on Exercise, Rehabilitation, and Prevention) and the Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity). <i>Circulation</i> , 107(24), 3109-3116.
M2: Lecture 4 and M2: Lecture 5	<b>Required:</b> Corra, U., Piepoli, M. F., Carre, F., Heuschmann, P., Hoffmann, U., Verschuren, M., et al. Secondary prevention through cardiac rehabilitation: physical activity counselling and exercise training: key components of the position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. <i>Eur Heart J</i> , 31(16), 1967-1974. <b>Required:</b> Williams, M. A., Haskell, W. L., Ades, P. A., Amsterdam, E. A., Bittner, V., Franklin, B. A., et al. (2007). Resistance exercise in individuals with and without cardiovascular disease: 2007 update: a scientific statement from the American Heart Association Council on Clinical Cardiology and Council on Nutrition, Physical Activity, and Metabolism. <i>Circulation</i> , 116(5), 572-584.
<b>Module 3</b>	<b>Clinical Exercise Testing</b>
M3: Lecture 1 and M3: Lecture 2	<b>Required:</b> Fletcher, G. F., Balady, G. J., Amsterdam, E. A., Chaitman, B., Eckel, R., Fleg, J., et al. (2001). Exercise standards for testing and training: a statement for healthcare professionals from the American Heart Association. <i>Circulation</i> , 104(14), 1694-1740.
M3: Lecture 3	<b>Required:</b> ACSM Resource Manual for Guidelines for Exercise Testing and Prescription (7 <sup>th</sup> Ed). (2014) Chapter 27: Electrocardiography. Lippincott Williams & Wilkins
M3: Lecture 4	No required readings.
<b>Module 4</b>	<b>Prescribing Exercise for Cardiac Patients</b>
M4: Lecture 1	<b>Required:</b> Piepoli MS et al. Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. <i>Eur J Cardiovasc Prev Rehabil</i> .2010;17:1-17 ( <i>relevant sections: pages 4-6</i> ) <b>Suggested:</b> New Zealand Guidelines Group. 2002. Cardiac rehabilitation guideline. Wellington: New Zealand Guidelines Group
M4: Lecture 2	No required readings.
M4: Lecture 3	<b>Required:</b> Piepoli MS et al. Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. <i>Eur J Cardiovasc Prev Rehabil</i> .2010;17:1-17 ( <i>relevant sections: pages 4-6</i> ) <b>Required:</b> Michaels, A. D., & Chatterjee, K. (2002). Cardiology patient pages. Angioplasty versus bypass surgery for coronary artery disease. <i>Circulation</i> , 106(23), e187-190.
M4: Lecture 4 and M4: Lecture 5	<b>Required:</b> Pina, I. L., Apstein, C. S., Balady, G. J., Belardinelli, R., Chaitman, B. R., Duscha, B. D., et al. (2003). Exercise and heart failure: A statement from the American Heart Association Committee on exercise, rehabilitation, and prevention. <i>Circulation</i> , 107(8), 1210-1225.
M4: Lecture 6	<b>Required:</b> Piepoli MS et al. Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. <i>Eur J Cardiovasc Prev Rehabil</i> .2010;17:1-17 ( <i>relevant sections: pages 7-10</i> )

M4: Lecture 7	<p><b>Required:</b> Corra, U., Mendes, M., Piepoli, M., &amp; Saner, H. (2007). Future perspectives in cardiac rehabilitation: a new European Association for Cardiovascular Prevention and Rehabilitation Position Paper on 'secondary prevention through cardiac rehabilitation'. <i>Eur J Cardiovasc Prev Rehabil</i>, 14(6), 723-725.</p> <p><b>Required:</b> Piepoli MS et al. Secondary prevention through cardiac rehabilitation: from knowledge to implementation. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation. <i>Eur J Cardiovasc Prev Rehabil</i>.2010;17:1-17 (<i>relevant sections: pages 7-10</i>)</p>
M4: Lecture 8	No required readings.

### Assessment (100% Internal Assessments)

<b>Term Test</b>	<b>35%</b>
<b>Literature Review</b>	<b>35%</b>
<b>Article Critique</b>	<b>15%</b>
<b>Oral Presentation</b>	<b>15%</b>
<b>Total</b>	<b>100%</b>

**A. Term Test (35%): Week 9 (2 hours).** Date and location to be advised. **Term test must be taken on the scheduled date!**

- Term test will consist of short answer questions and case studies.
- In this assessment, students will be expected to demonstrate knowledge of the goals and services of cardiac rehabilitation programmes, fundamentals of the pathophysiology and treatment of cardiovascular disease, procedures used in clinical exercise testing and designing comprehensive exercise programmes for cardiac patients through different phases of cardiac rehabilitation.

**B. Literature Review (35%):**

- The written assignment will consist of a 15-page (double-spaced) literature review (3000 words) on a selected cardiac rehabilitation topic with 15 to 20 references related to the assignment topic. Reference list will *not* count toward 15 pages of the report.
- The writing style of the report must meet the standards of a university level paper.
- The course uses the APA (American Psychological Association) referencing style. You are recommended to obtain the tutorial booklet *Using the APA Referencing Style* from the Student Learning Centre in the ISB Building. You will also find information about different referencing styles at: <http://www.library.otago.ac.nz/research/citation.html>
- Available assignment topics will be announced on the first lecture. Examples of assignment topics: 1) Cardiac rehabilitation after stroke; 2) Strategies to improve referral to cardiac rehabilitation
- **Due Date: Week 14**
- Detailed assignment instructions and feedback template will be provided during the course.

### C. Article Critique (15%)

- Students will choose 1 of 2 research articles selected by the course instructor and prepare a 5-page (double-spaced) report commenting on study design, research methodology and overall quality of the research article. **Due Date: Week 13**
- Detailed instructions about the assignment will be provided during the course.

### D. Presentation (15%):

- Students will prepare a 20-minute presentation to introduce their assignment topic and discuss the findings of their literature review. The presentation will be followed by a 5-minute discussion period. An electronic copy of the presentation needs to be submitted to the instructor one day before the presentation.
- Students' presentations will be marked based on content, presentation style, originality, effectiveness of audio-visual aids, and quality of your answers to questions. You will receive feedback from both your peers and your instructor and will be asked to complete self-evaluation report after your presentation. Your final mark for your presentation will be based on the evaluations by your instructor (12%) and your peers (3%).
- Detailed template for presentation feedback will be provided during the course.
- Student presentations will be scheduled during the **Weeks 10 to 14**

The grading scheme used at the University of Otago is:

A+	90-100	B	70-74	C-	50-54
A	85-89	B-	65-69	D	40-49
A-	80-84	C+	60-64	E	<40
B+	75-79	C	55-59		

### Expected Workload

Course component	Hours	Details
<b>Lectures</b>	24 hours	1-3 lectures per week, 1 hour each, for 13 weeks
<b>Seminars</b>	4 hours	4 seminars throughout the semester
<b>Student presentations</b>	10 hours	In-class student presentations
<b>Laboratories</b>	10 hours	5 laboratories, 2 hours each
<b>Field trip</b>	2 hours	1 field trip x 2hours
<b>Class preparation</b>	30 hours	2-3 hours per week for lecture and seminar preparation
<b>Private study</b>	30 hours	1-2 hour per week in addition to class preparation
<b>Literature review assignment</b>	64 hours	Essay 3000 words requiring 60 hours
<b>Presentation assignment</b>	20 hours	Presentation requiring 20 hours
<b>Research article critique</b>	14 hours	Written report of a research article critique
<b>Term test preparation</b>	28 hours	28 hours for term test preparation
<b>Term test</b>	2 hours	2 hours term test
<b>TOTAL</b>	<b>~240 hours</b>	

## Key Dates and Events

<b>Week 9</b>	Term test
<b>Week 10, 11, 12, 13 or 14</b>	Your seminar presentation date
<b>Week 13</b>	Article critique
<b>Week 14</b>	Literature review assignment due

## Course Policies

### Late Assignments

Ensure that your assignments are submitted on time. Late assignments will receive a penalty of 10% of the total marks available deducted per day. Assignments more than 5 days late will receive a zero grade.

### Extenuating Circumstances

In extenuating circumstances (including a death or major illness in the family, personal severe illness or severe injury) extensions or absences may be applied for. A Health Declaration/Medical Certificate will be required (available from the Administration Office). For scheduled representative sporting competition, extensions or absences may be granted. All applications for extensions/absences must be made in writing and directed to the course lecturer **before** the due date.

### Plagiarism

Students should make sure that all submitted work is their own. Plagiarism is a form of dishonest practice. Plagiarism is defined as copying or paraphrasing another's work and presenting it as one's own (University of Otago Calendar). In practice this means plagiarism includes any attempt in any piece of submitted work (e.g. an assignment or test) to present as one's own work the work of another (whether of another student or a published authority). Any student found responsible for plagiarism in any piece of work submitted for assessment shall be subject to the University's dishonest practice regulations which may result in various penalties, including forfeiture of marks for the piece of work submitted, a zero grade for the paper, or in extreme cases exclusion from the University. The University of Otago reserves the right to use plagiarism detection tools.

### Impairment

If you are suffering from anything that is likely to impair your study in this course, please let the Course Instructor know as soon as possible. If you let us know of any problems we can make arrangements for appropriate support.

### Assistance

We are here to assist you to learn academic content, and to equip you with skills to continue your own learning. Your lecturer will be happy to answer any questions regarding the course content that you may have. You are encouraged to ask questions during the lectures. If you have further questions, please come to see your lecturer during the regular office hours.

### Your Concerns about the Course

We hope you will feel comfortable coming to talk to your lecturer if you have a concern about the course. Your lecturer will be happy to discuss any concerns. Alternatively, report your concerns to the student representative who will follow up with Departmental staff. If these channels do not address your concerns, there are university channels that may aid resolution. For further information, contact the departmental administrator or Head of Department.