



**SPORT SCIENCE & MANAGEMENT
SS3112 EXERCISE PRESCRIPTION**

Pre-requisites	SS1105 Foundations of Exercise Physiology
No of AUs	3
Contact Hours	Total hours: 39 Lecture: 26 Laboratory: 13

Course Aims

The objectives of this applied exercise physiology course are to know 1) the role of exercise and physical activity for health as an intervention to prevent and/or manage chronic health conditions and 2) the exercise prescriptions for select chronic health conditions.

Intended Learning Outcomes (ILO)

By the end of the course, you should be able to:

1. describe the select chronic health conditions covered in this module and common non-exercise treatment for these conditions,
2. describe and discuss the physiological importance and benefits of exercise and physical activity for health,
3. illustrate the use of exercise as medicine for management of select chronic health conditions,
4. provide evidence-based health benefits of exercise for the select chronic health conditions,
5. write basic exercise programmes for individuals with the select chronic health conditions using exercise testing and prescription guidelines from leading health and exercise authorities,
6. design home-based exercises for the covered health conditions, and
7. demonstrate home-based exercises for the covered health conditions

Course Content

The course content will cover the following chronic health conditions:

- Sarcopenia
- Osteoporosis
- Arthritis
- Cancer
- Obesity
- Diabetes
- Coronary heart disease
- Stroke
- Spinal cord injuries

- Neuromuscular disorders (muscular dystrophy, multiple sclerosis and/or others)

For each of the health conditions listed above, the following will be covered **where applicable**:

1. Description, definitions and types
2. Symptoms
3. Screening and diagnosis
4. Prevalence and incidence rates (local, regional and/or international)
5. Burden of disease (local, regional and/or international)
6. Consequences
7. Mortality and survival rates (local, regional and/or international)
8. Causes and risk factors
9. Current treatment options
10. Side effects of current treatment options
11. Efficacies and/or effectiveness of current treatment options
12. Efficacies and/or effectiveness in using exercise or physical activity on its own or in conjunction with other treatment options in prevention and management of the health condition
13. Recommended exercise prescription/guidelines for physical activity for the health condition in managing the condition including general and specific considerations, and contraindications if any.

Assessment (includes both continuous and summative assessment)

Component	Course ILO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment rubrics
1. Presentation	1, 3-4, 7	A1-3, B1-2, C1, D1-2	20%	Individual	Appendix 1
2. Term Paper	1, 3-5	A1-2, B1-3, C1-2, D1-2	20%	Team	Appendix 2
3. Examination	1-6	A1, B1-3, C1	60%	Individual	
Total			100%		

Graduates of the SSM programme should show:

Competence	
A1: {Understanding}	process and interpret information, evidence and methodologies related to sport science or sport management
A2: {Self-discipline}	independently apply themselves to solve relevant problems

A3: {Modern Tool Usage}	use technology to communicate and provide feedback on sports activities, improve sports performance, monitor and increase physical activity, provide exercise prescription, solve problems for disadvantaged athletes/sportspeople, and commercialize and innovate sports products, events and services
Creativity	
B1: {Critical Thinking}	critically assess the applicability of sport science and sport management tools toward problems and in the workplace
B2: {Analytical Thinking}	critically analyse data from a multitude of sources
B3: {Interdisciplinary Thinking}	connect the subfields of sport science and sport management to tackle problems
B4: {Innovation}	be able to develop new applications or improve existing techniques
B5: {Entrepreneurship}	develop new ideas and plans for sport science, businesses and events
Communication	
C1: {Effective Communication}	present findings or ideas from sport science and sport management research logically and coherently at the appropriate level for the intended audience and in all forms of communication
C2: {Teamwork}	work in teams on projects that require sport science or sport management application, and communicate results via demonstration, verbally and in written form
Civic-Mindedness	
D1: {Professionalism}	act in a manner that respects the profession and meets the expectations of the sport science and sport management industry
D2: {Inclusiveness}	promote sport and physical activity in all individuals to bring people together and improve physical, social and psychological outcomes
Character	
E1: {Ethical behaviour}	act with integrity and in a socially responsible and ethical manner in line with societal and legal expectations in relation to collecting and analysing data of people and protecting personal data with appropriate computer security

E2: {Sportspersonship}	demonstrate appropriate safety, concern and good conduct in sport situations towards other individuals involved in the activity
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Formative feedback

For lecture-based sessions, you will be asked key conceptual questions to help you understand the theoretical content. Verbal and written feedback for learning will be provided during and after each presentation, respectively. Generic written feedback will be provided to the class for the term paper.

Learning and Teaching approach

Approach	How does this approach support students in achieving the learning outcomes?
Lectures	Lectures will provide information for key learning concepts and theories and support understanding of key concepts
Presentation	This approach supports you to research and learn independently. You will have the opportunity to explore and gather knowledge beyond the classroom. This also provides you with soft skills, such as confidence in delivering clear and concise presentations.
Term Paper	You will be required to write a mini review paper on evidence-based benefits of exercise/physical activity, and exercise prescription (programme) for one of the assigned health conditions covered in this course. The term paper also 1) tests and deepens your understanding, 2) enhance your ability to apply what you have learnt in class and 3) develop your writing skills for scientific writing. You will also learn to work in a team effectively.
Examination	Test the understanding and application of the various topics covered

Reading and References

Recommended Required Course Texts:

- American College of Sports Medicine, *ACSM's guidelines for exercise testing and prescription*, 10th Edition, Wolters Kluwer Health/Lippincott Williams & Wilkins, 2017.

Supplemental Texts:

- American College of Sports Medicine, *ACSM's exercise management for persons with chronic diseases and disabilities*, 4th Edition, Human Kinetics, 2016.

Course Policies and Student Responsibilities

General

You are expected to complete all assigned pre-class readings and activities, attend all laboratory classes punctually and take all scheduled assignments and tests by due dates. You are not allowed to swap laboratory groups without express permission from the course

coordinator. You are expected to take responsibility to follow up with course notes, assignments and course related announcements for seminar sessions you have missed. You are expected to participate in all seminar discussions and activities.

Absenteeism

Absence from class without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies. If you miss a lecture, you must inform the lecturer via email prior to the start of the class.

Absence Due to Medical or Other Reasons

If you are sick and not able to attend a quiz or a midterm, you have to submit the original Medical Certificate (or relevant document) to the administration to obtain official leave. In this case, the missed assignment component will not be counted towards the final grade. There are no make-up quizzes or make-up midterm.

Attire and safety

You are expected to participate in practical laboratory activities. Some of these activities involve exercise. All of you are expected to wear appropriate attire for participation, obey laboratory safety rules, and take appropriate care of and return all equipment after use.

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Collaboration is encouraged for your work in the class and laboratories because peer-to-peer learning helps you understand the subject better and working in a team trains you to better communicate with others. Working together and exchanging ideas and experiences will help improve the quality of your assessed presentation. It is important to credit others for their contribution to your work which promotes ethical practices and academic integrity.

Course Instructors

Instructor	Office Location	Phone	Email
TBC	XXX	XXX	XXX

Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
1	Sarcopenia	LO1-5	Chapter XX, Pages XX-XX
2	Sarcopenia	LO1-5	Chapter XX, Pages XX-XX
3	Osteoporosis Presentation	LO1-7	Chapter XX, Pages XX-XX
4	Arthritis Presentation	LO1-7	Chapter XX, Pages XX-XX
5	Cancer Presentation	LO1-7	Chapter XX, Pages XX-XX
6	Cancer Presentation	LO1-7	Chapter XX, Pages XX-XX
7	Obesity Presentation	LO1-7	Chapter XX, Pages XX-XX
8	RECESS WEEK		
9	Diabetes Presentation	LO1-7	Chapter XX, Pages XX-XX
10	Coronary heart disease Presentation	LO1-7	Chapter XX, Pages XX-XX
11	Stroke Presentation	LO1-7	Chapter XX, Pages XX-XX
12	Spinal cord injuries Presentation	LO1-7	Chapter XX, Pages XX-XX
13	Neuromuscular disorders Presentation	LO1-7	Chapter XX, Pages XX-XX
14	Term paper due	LO3-5	Revision for exams

Appendix 1: Assessment Rubric for Presentation (Individual)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
Quality of presentation (max 15)	Information provided clearly answers the question set out. Presentation is clear and the flow is coherent and logical. Pace is appropriate.	Information mostly answers the question set. Presentation is mostly clear and the flow generally coherent and logical.	There are weaknesses or absences in the information provided and the flow of presentation is unclear at times.	Much of the information provided does not answer the question and the flow is difficult to understand.	Little relevant information and unclear flow.
Familiarity with material (max 20)	Demonstrates a very good understanding of the material. Able to answer questions in a poised and articulate manner with a high level of confidence.	Demonstrates a good understanding of the material. Able to answer most of the questions clearly and with confidence.	Demonstrates a basic understanding of the material. Able to answer some of the questions clearly but lacks confidence at times.	Demonstrates a weak understanding of the material. Has difficulty in answering questions and lacks confidence.	Does not demonstrate any understanding of the material. Unable to answer questions.
Use of technology (max 5)	Uses relevant technology very well to supplement and enhance the quality of presentation.	Good use of technology to improve the presentation.	Some use of technology to help improve the presentation.	Little use of relevant technology in the presentation.	No clear use of technology in the presentation.
Communication (max 10)	Communication is very clear and easy to understand. All members of the team make strong, worthwhile contributions.	Communication is clear and easy to understand most of the time. Most members of the team make good contributions.	Communication is unclear at times. Varied contributions of different team members.	Communication is unclear and there are difficulties to understand. Most contribution provided by a single team member.	Communication is unclear and not possible to understand. No team member makes worthwhile contribution.

Appendix 2: Assessment Rubric for Term Paper (Team)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
Structure of paper, quality of writing & presentation (max 10)	Paper is well structured. Very minor grammatical and spelling errors. All tables, figures, graphs and charts well presented.	Some improvement in structure possible. Few grammatical and spelling errors. Most tables, figures, graphs and charts well presented.	Improvement in structure needed. Obvious grammatical and spelling errors. Tables, figures, graphs and charts need improving.	Poor structure. Many spelling and grammatical errors. Poor presentation of tables, figures, graphs and charts.	Coherent structure absent. Copious spelling and grammatical errors. Very poor presentation of tables, figures, graphs and charts.
Literature review, understanding of assigned topic and referencing (max 20)	Review incorporates all main relevant background studies with critical appraisal. No referencing errors.	Most relevant background studies included with good attempt at critical appraisal of previous work. Few referencing errors.	Some relevant references cited. Some attempt at critical appraisal of previous work. Some references cited incorrectly or absent.	Small number of references cited. Very little critical appraisal of previous work. Large number of referencing and citation errors.	Few references cited with little or no relevance to study problem. No critical appraisal of studies. Very poor referencing.
Programme design (max 20)	Strong programme design.	Good programme design	Programme design could be improved.	Poor programme design	Very poor or unsafe programme design

Each team member is expected to contribute significantly to the team's final product and one another's learning and that the scores of each team member may vary according to feedback or observations.