



**SPORT SCIENCE & MANAGEMENT
SS3115 SPORT NUTRITION**

Pre-requisites	None required
No of AUs	3
Contact Hours	Total hours: 39 Lecture: 20 Laboratory: 19

Course Aims

The aim of this course is to examine the role of nutrition in supporting the physical and mental performance, growth, and health and fitness of athletes. The course is designed to be an upper level module for undergraduate sport science students. The course will cover a range of content related to the energy requirements of athletes, the role of individual macronutrients in assisting performance and growth, the use micronutrients in supporting athletic health, evidence related to the intake and use of nutritional supplements, the role of sports drinks for athletic performance, eating disorders among athletes, and nutrition to support immune function. Laboratory sessions will provide hands-on opportunities to examine some of these topics and guest lectures/visits will support the lecture material.

Intended Learning Outcomes (ILO)

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

1. Describe the energy requirements of athletes in different sports.
2. Explain the role of carbohydrate and fat in energy supply during exercise.
3. Critically compare and contrast the use of carbohydrate and fat for supporting elite exercise performance.
4. Discuss the evidence surrounding the role of protein in growth and repair for athletes.
5. Quote recommendations for carbohydrate and protein intake for athletes.
6. Evaluate the role and intake of micronutrients for athletes.
7. Discuss the evidence related to nutritional supplements for sports performance.
8. Appraise the role of sports drinks on endurance performance.
9. Discuss the effect of eating disorders (relative energy deficiency) on sport performance and athletes' health.
10. Discuss the functions of the immune system and nutritional manipulations to decrease immunodepression in athletes.

Course Content

The following topics will be covered:

1. Energy requirements of athletes
2. Carbohydrates and energy provision
3. Carbohydrates and sport performance
4. Fats for exercise and sport performance
5. Protein metabolism and requirements for sport
6. Micronutrients for athletes
7. Nutritional supplements
8. Sport drinks
9. Eating disorders (relative energy deficiency) in athletes
10. Nutrients and immune function

Assessment (includes both continuous and summative assessment)

Component	Course ILO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment rubrics
1. Laboratory assignment	2, 3	A1, A2, A3, B1, B2, C1, C2, D1, E1	25%	Individual/Team	Appendices 1-2
2. Presentation	1-7	A1, A2, A3, B1, B2, C1, C2, D1	25%	Team	Appendices 3-4
3. Examination	1-10	A1, B1, B2	50%	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

Formative feedback

Feedback for learning will be verbal provided during laboratory classes where you have the opportunity to learn techniques and apply yourselves to problems related to each organ system. Generic verbal and written feedback will be provided for the laboratory report and final examination.

Learning and Teaching approach

Approach	How does this approach support you in achieving the learning outcomes?
Lectures	Lectures will provide information for key learning concepts and theories and support understanding of key concepts
Laboratories	Laboratories will: <ul style="list-style-type: none"> - Give hands-on experiential learning to support key theories and information provided in class - Provide tasks for you to utilise what you have recently learned to solve specific problems. - Give space and time for small group activities and discussions to allow you to assimilate the content and for sharing learning - Allow opportunity for verbal feedback from instructor on techniques and material.
Online learning	Time will be given over for learning from online materials as a part of a flipped teaching approach. These materials will support key concepts covered in lectures and laboratories.

Reading and References

Recommended texts:

- McArdle, W.D., Katch, F.I., & Katch, V.L. (2015). *Exercise Physiology: Nutrition, Energy, and Human Performance*. 8th Edition. Lippincott Williams & Wilkins
- Powers, S.K., & Howley, E.T. (2015). *Exercise Physiology: Theory and Application to Fitness and Performance*. 9th Edition. McGraw-Hill.

Course Policies and Student Responsibilities

(1) General

You are expected to complete all assigned pre-class readings and activities, attend all classes – lecture and laboratory - punctually and submit the scheduled assignment by the due dates. You are expected to take responsibility to follow up with course notes, assignments and course related announcements for sessions missed. You are expected to participate in all discussions and class activities unless there is a valid medical reason not to do so.

(2) 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 course instructor via email prior to the start of the class.

(3) Absence Due to Medical or Other Reasons

If you are sick and not able to complete a test or submit an assignment, you have to submit the original Medical Certificate (or another relevant document) to the Sport Science & Management (or Home School) administration to obtain official leave. Without this, the missed assessment component will not be counted towards the final grade. There are no make-ups allowed.

(4) 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 Instructor

Instructor	Office Location	Phone	Email
TBC	XXX	XXX	XXX

Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
1	Introduction to nutrition	LO1 – LO10	Chapter XX, Pages XX-XX
2	Energy requirements of athletes Laboratory assignment – data collection	LO1	Chapter XX, Pages XX-XX

3	Carbohydrates and energy provision Laboratory assignment – data collection	LO2, LO3	Chapter XX, Pages XX-XX
4	Carbohydrates and sport performance Laboratory assignment – data collection	LO2, LO3, LO5	Chapter XX, Pages XX-XX
5	Fats for exercise and sport performance	LO2, LO3	Chapter XX, Pages XX-XX
6	Protein metabolism and requirements for sport	LO4, LO5	Chapter XX, Pages XX-XX
7	Micronutrients for athletes	LO6	Chapter XX, Pages XX-XX
8	Half-term		
9	Group presentations	LO1 – LO6	Chapter XX, Pages XX-XX
10	Nutritional supplements	LO7	Chapter XX, Pages XX-XX
11	Sport drinks	LO8	Chapter XX, Pages XX-XX
12	Eating disorder (relative energy deficiency) in athletes	LO9	Chapter XX, Pages XX-XX
13	Nutrients and immune function	LO10	Chapter XX, Pages XX-XX
14	Revision	LO1 – LO10	

Appendix 1: Assessment rubric for Laboratory Assignment (80% Assignment Grade)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
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Individual: Structure and clarity of writing & presentation (max 20)	Well structured. Very minor grammatical and spelling errors. Table and/or figures well presented.	Some improvement in structure possible. Few grammatical and spelling errors. Tables and/or figures well presented.	Improvement in structure needed. Obvious grammatical and spelling errors. Tables and figures need improving.	Poor structure. Many spelling and grammatical errors. Poor presentation of tables and figures.	Coherent structure absent. Copious spelling and grammatical errors. Very poor presentation of tables and figures.
Individual: Introduction, background, aims, hypotheses and objectives (max 20)	Background statement of problem clearly defined. Aim clear.	Background statement of problem could be clearer. Small improvement in defining aim of study needed.	Background statement of problem and aim need improving.	Background statement and aim not clear.	Background statement and aim unclear.
Individual: Methods (max 20)	Comprehensive description of methods.	Good description of methods with few errors.	Methods described but with some errors or omissions.	Methods described difficult to follow and omissions.	Little coherent description of methods.
Individual: Data analysis and interpretation (max 20)	Appropriate data analysis applied and interpretation of results.	Good data analysis and interpretation of results with few errors.	Incorrect data analysis in parts and interpretation of results incorrect or inappropriate in parts.	Poor data analysis and interpretation of results.	Inappropriate or very poor data analysis and interpretation of results.
Individual: Discussion and concluding remarks (max 20)	Conclusion(s) clearly related to results.	Conclusion(s) clear with small errors.	Some conclusion(s) not supported by study results.	Conclusion(s) generally inappropriate or incorrect.	Conclusion(s) unclear, poor and inappropriate.

Appendix 2: Peer evaluation rubric for Laboratory Assignment (20% Assignment Grade)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
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Contribution to data collection and report (max 50)	Individual made a strong contribution to all aspects of data collection and development of report.	Individual made worthwhile contribution to most aspects of data collection and development of report.	Individual contributed to some aspects of data collection and development of report.	Individual made minor contributions to data collection and development of report.	Individual made little or no contribution to data collection and development of report.
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
Teamwork (50)	Individual worked constructively and collaboratively with all other team members.	Individual worked constructively and collaborated well with other team members most of the time.	Individual was constructive and collaborated well with other team members some of the time.	Individual was rarely constructive or collaborative in working with other team members.	Individual was unable to be constructive or collaborate well with other team members.
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>*Other team members to collectively mark X in box next to evaluation for team members name.</i>					

Appendix 3: Assessment rubric for Group Presentation (80% Presentation Grade)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
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Team: Quality of presentation (max 25)	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.
Team: Familiarity with material (max 40)	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.
Team: Use of technology (max 10)	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.
Team: Communication and teamwork (max 25)	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 is difficulty 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 4: Peer evaluation rubric for Group Presentation (20% Presentation Grade)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
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Contribution to presentation development and delivery (max 50)	Individual made a strong contribution to all aspects of development and delivery of presentation.	Individual made worthwhile contribution to most aspects of development and delivery of presentation.	Individual contributed to some aspects of development and delivery of presentation.	Individual made minor contributions to development and delivery of presentation.	Individual made little or no contribution to development and delivery of presentation.
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
Teamwork (50)	Individual worked constructively and collaboratively with all other team members.	Individual worked constructively and collaborated well with other team members most of the time.	Individual was constructive and collaborated well with other team members some of the time.	Individual was rarely constructive or collaborative in working with other team members.	Individual was unable to be constructive or collaborate well with other team members.
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>Insert name of team member*</i>					
<i>*Other team members to collectively mark X in box next to evaluation for team members name.</i>					