



**SPORT SCIENCE & MANAGEMENT
SS2108 FUNDAMENTALS OF SPORTS INJURIES**

Pre-requisites	None required
No of AUs	3
Contact Hours	Total hours: 39 Lecture: 26 Practical: 13

Course Aims

This course is designed to introduce the types, causes and mechanisms of common sports injuries. The course will be anchored on a sound knowledge of functional anatomy and its application in the context of sports. You will learn to identify different sports-related injuries and develop fundamental knowledge to determine the underlying risk factors and skills to identify the commonly encountered injuries in sports. The course will also include learning of the basic principles of prevention and management of sports injuries. This course will provide a strong foundation in sports injury identification, management and prevention that can be applied in various fields like sports safety during training and competitions, exercise prescription, athlete care, first-aid and rehabilitation of injuries, and development of injury prevention programmes.

Intended Learning Outcomes (ILO)

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

1. Explain the functional anatomy of the body part injured and list the structures involved.
2. Categorise sports injuries according to type, nature, tissue, and body part.
3. List the risks factors and identify the mechanism of different sports injuries.
4. Identify the type of sports injury, recognize the signs and symptoms, and enumerate the principles and steps of management.
5. Classify and articulate general and specific principles of sports injury management and rehabilitation.
6. List the general and specific measures for injury prevention and develop preventive programmes to reduce the occurrence of sports injuries.

Course Content

The following topics will be covered:

1. Functional anatomy and relevant terminology
2. General aspects of sports injuries
3. Mechanisms and characteristics of sports trauma
4. Injuries to the shoulder
5. Injuries to the upper extremities
6. Injuries to the neck and upper back
7. Injuries to the trunk and spine

8. Injuries on the hip and pelvic area
9. Injuries to the thigh and knee
10. Injuries on the lower leg, foot and ankle
11. Injuries on the head and face

Assessment (includes both continuous and summative assessment)

Component	Course ILO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment rubrics
1. Project Presentation	1, 2, 3, 4, 5, 6	A1, A3, B1, B3, C1, C2, D1	20%	Individual	Appendix 1
2. Assignment	1, 2, 3, 4, 5, 6	A1, B1, B2, B3, C1, C2, D1	30%	Team	Appendix 2
3. Examination	1, 2, 3, 4, 5, 6	A1, A2, B1	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: {Sportpersonship}	demonstrate appropriate safety, concern and good conduct in sport situations towards other individuals involved in the activity

Formative feedback

The lectures will involve the 'Team-based Learning' approach. Students will receive frequent and immediate feedback on learning, based on the performance in the readiness assurance tests. The feedback on performance and progress will facilitate content learning and retention, as well as have a positive impact on group development.

During the practical sessions, the feedback on learning will be verbally provided where you will have the opportunity to learn knowledge transfer into different sports contexts and

develop skills of applying yourselves to solve the problems related to the injury 'risk-mechanism-incident-outcome' continuum during sport.

During the completion of the group presentation, you will be provided with verbal feedback pertaining to your assessed performance. This will include feedback on both group-based and individual performances. Generic verbal feedback will be provided on the written assignment. Lastly, generic written feedback will be provided to the class on the examination performance.

Throughout the course, you will have opportunity to use various interactive smartscreen technologies, softwares and apps to bolster learning of the content. This will include 3D apps and softwares on basic human anatomy, functional anatomy apps with self-paced learning and quizzes, and sports injury-related apps to facilitate out-of-class learning and application. You will also be experiencing real-time injury case presentations to develop the skills of applying the learning into practice. Throughout the course, you will receive frequent and timely verbal feedback on your progress, gaps in learning and conceptual understanding, and skills developed for application.

Learning and Teaching approach

Approach	How does this approach support you in achieving the learning outcomes?
Lectures	All classroom-based lectures will adopt a team-based learning approach. This is intended to promote content learning and retention, skills to critique and collaborate, facilitate decision making and problem solving skills, and develop the attributes of self-discipline and accountability. Furthermore, the team-based learning will enable the lecturer to provide immediate feedback, monitor progress of students, at both individual level and as a group, fill up the gaps in content knowledge and theory-practice transfer skills, and provide information for key learning concepts and theories and support understanding of key concepts.
Practical	The practical sessions will: <ul style="list-style-type: none"> - Give real-time experiential learning to support key theories and information provided in class - Provide tasks for you to utilise recently learned content knowledge and skills 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 to you on techniques and material.
Online learning	Time will be given for learning from online materials as a part of flip teaching approach. These materials will support key concepts covered in lectures and practical sessions.

Reading and References

1. Peterson, L., & Renstrom, P. (2016). Sports Injuries- Prevention and Treatment (4th Edition). CRC Press. Taylor and Francis Group. Core text.
2. Sports Injuries Guidebook (2008). Robert Gotlin, Human Kinetics.
3. Flegel, M. J. (2014). Sport First Aid: A coach's guide to the care and prevention of athletic injuries (5th Ed.). Human Kinetics.

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 all scheduled assignments and take 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 sessions they have 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 field-related activities. All of you are expected to wear appropriate attire for participation, obey field 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
Swarup Mukherjee	NIE5-03-32A	6219 6214	swarup.mukherjee@nie.edu.sg
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Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
1	<ul style="list-style-type: none"> • Course Overview • Basic anatomy and Terminology 	LO1	Chapter XX, Pages XX-XX
2	Tissue types and injuries	LO1, LO2	Chapter XX, Pages XX-XX
3	Mechanisms and Characteristics of Sports Trauma	LO2, LO3	Chapter XX, Pages XX-XX
4	Shoulder – functional anatomy, biomechanics, basic inspection/examination, common injuries and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX

5	Elbow, wrist & hand – functional anatomy, biomechanical relationships, basic inspection/examination, common injuries and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX
6	Neck and trunk – functional anatomy, basic inspection/examination, common injuries and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX
7	Spine- Osseous, muscular and ligamentous anatomy, basic inspection/examination, common injuries and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX
8	Half-term		
9	Hips and pelvis – functional anatomy, basic inspection/examination, common causes of groin pain in sports, common hip and pelvic injuries in sports and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX
10	Thigh and knee – Functional and Musculoskeletal anatomy, basic inspection/examination, common injuries of thigh and knee, and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX
11	Lower leg – functional anatomy, common causes of shin and calf pain in sports, common sports-related injuries and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX

12	Foot and ankle – functional anatomy, basic inspection/examination, common sports-related injuries and their management and prevention	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX
13	<ul style="list-style-type: none"> •Sports-related concussion •Common injuries to the eyes, ear, nose and mouth 	LO2, LO3, LO4, LO5, LO6	Chapter XX, Pages XX-XX
14	Class presentation	LO1-6	

Appendix 1 – Marking rubric

PROJECT PRESENTATION (INDIVIDUAL)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
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 out. Presentation is mostly clear and the flow generally coherent and logical.	There are weaknesses or gaps 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 content material (max 40)	Demonstrates a very good understanding of the content. Able to answer all the questions from instructor/peers in a poised and articulate manner with a high level of confidence.	Demonstrates a good understanding of the content. Able to answer most of the questions from instructor/peers clearly and with confidence.	Demonstrates a basic understanding of the content. Able to answer some of the questions from instructor/peers clearly but lacks confidence at times.	Demonstrates a weak understanding of the content. Has difficulty in answering questions from instructor/peers and lacks confidence.	Does not demonstrate any understanding of the content. Unable to answer any questions from instructor/peers.
Use of technology (max 10)	Uses relevant technology very effectively to supplement and enhance the quality of presentation.	Good use of technology to improve the quality of presentation.	Some use of technology to help improve the quality of presentation.	Little use of relevant technology in the presentation.	No clear use of technology in the presentation.
Communication (max 25)	Communication is very clear and easy to understand. Provides convincing answer(s) to the	Communication is clear and easy to understand most of the time. Provides good answer(s) to	Communication is unclear at times. Provides answer(s) with some gaps to the topic/question	Communication is unclear and there is difficulty to understand. Provides answer(s) with many	Communication is unclear and not possible to understand. Does not provide any worthwhile answer(s) to

	topic/question in discussion.	the topic/question in discussion.	n in discussion.	gaps to the topic/question in discussion.	the topic/question in discussion.
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Appendix 2 – Marking rubric

ASSIGNMENT (TEAM/GROUP)

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
Abstract (max 5)	Absolutely clear and concise. Presents the focus clearly, and highlights all the key points of the paper. Provides a brief yet reflective conclusion.	Concise and presents the focus of the paper. Most of the key points in the paper are presented. The conclusion is appropriately structured.	Concise and presents the focus of the paper. Some of the key points in the paper are highlighted. Conclusion provides some reflection of the findings.	Concise but vaguely presents the focus of the paper. Most key points in the paper have been missed. Conclusion provides minimal reflection of the findings.	The focus of the paper is vague and unclear. The key points in the paper have been missed. Conclusion is vague and no reflection of the findings.
Introduction (max 25)	Information provided clearly presents the significance of the topic and is supported by statistics. The premise and the focus is clear. Organization and presentation of the argument is completely and clearly outlined and implemented.	Information provided is mostly clear and significance of the topic is highlighted. The focus is clearly presented. Organization and presentation of the argument is generally well outlined and implemented.	Information provided lacks adequate clarity and significance of the topic vaguely presented. The focus is not adequately clear. Organization and presentation of the argument is vague & not well implemented.	Much of the information provided lacks clarity and the significance of the topic is not well-established. The focus lacks clarity and there is a lack of clarity with respect to the organisation and presentation of the argument.	There is little relevant information and unclear flow. The premise is unclear and there is no clarity on the focus of the paper. There is a total lack of clarity with respect to the organisation and presentation of the argument.
Research (max 40)	Research selected credible, highly relevant to the argument, and presented accurately and completely. The method, results, and implications	Research selected is largely credible, relevant to the argument and presented clearly. The methods, results and implications are clearly presented.	Some of the research selected is not from credible sources, and at times not relevant to the argument. Methods lack adequate clarity, and findings and implications at	Most research selected is not credible, and has minimal relevance to the argument. Methods lack clarity and findings and implications are vaguely presented. Relationship	Almost all research is from non-credible sources. No relevance to the argument. Methods are not clear and findings and implications are vague and

	are all presented accurately. Relationship between research and theory is clearly and accurately articulated.	Relationship between research and theory is clearly articulated.	times are vaguely presented. Articulation of the relationship between research and theory at times lacks clarity.	between research and theory is unclear.	irrelevant. Either inaccurate or no attempt has been made to establish and relationship between research and theory.
Conclusion (max 15)	Conclusion is clearly stated and connections to the research and position are clear and relevant. The underlying logic is explicit.	Conclusion is clearly stated with some connections to the research and position. The underlying logic is largely clear.	Conclusion is stated with some connections to the research and position. The underlying logic is barely clear.	Conclusion is stated with minimal connections to the research and position. The underlying logic is not very clear.	Conclusion is stated with no connections to the research and position. The underlying logic is vague.
Writing (max 15)	Paper is coherently organized and the logic is easy to follow. There are no spelling or grammatical errors and terminology is fully and clearly defined. Writing is clear, concise and persuasive	Paper is largely well organized and most of the argument is easy to follow. There are only a few minor spelling or grammatical errors. Some of the terms are not clearly defined. Writing is mostly clear but at times lacks conciseness.	Paper is generally well organized but at times the argument is difficult to follow. There are a number of minor spelling or grammatical errors. Many terms are not clearly defined. Writing is at times unclear and lacks conciseness.	Paper is not well organised and the argument is difficult to understand. Parts are poorly connected. There are a many minor spelling or grammatical errors, and most terms are not clearly defined. Writing mostly lacks clarity and conciseness.	Paper is poorly organized and difficult to read and understand. Parts are disconnected . There are several spelling and/or grammatical errors; Most terms are not clearly or correctly defined. Writing lacks clarity and conciseness.

Each group member's score may vary according to observations, the group feedback, and individual's contribution to the group's final product and one another's learning.