



**SPORT SCIENCE & MANAGEMENT
SS1103 INTRODUCTION TO GROWTH & MOTOR DEVELOPMENT**

Pre-requisites	None
No of AUs	3
Contact Hours	39

Course Aims

This course focuses on factors influencing physical growth and motor development, age-related changes, individual, gender-related and maturity-associated variations in growth and development. Individual differences during the pubertal growth period will be highlighted and discussed. You will gain a better understanding of the impact of physical activities and sport participation thru-out the lifespan (especially in the early years) and its importance to the development of motor skills.

The importance of fundamental movements will be emphasized as the foundations of those skills developed in early childhood is essential to encourage a physically active lifestyle.

Intended Learning Outcomes (ILO)

By the end of this course, you (as a student) would be able to:

1. Explain the processes underlying physical growth and motor development during childhood and adolescence, the variations in these processes and factors influencing these processes.
2. Explain age and sex-related changes of growing children and the implications of these changes while planning and teaching physical education at different levels.
3. Apply Newell's Model of Constraints in explaining how different constraints influence the movements of children.
4. Define and explain the phases of motor development and factors that influence motor development.
5. Observe, analyse, categorise and discuss children's fundamental movement skills.
6. Explain the importance of incorporating developmentally appropriate movement tasks and games for children & youths

Course Content

- Factors influencing Growth and Maturation – Endocrines/Hormones /Skeletal Development
- Somatic Growth – Growth Curves; Changes at Puberty
- Gender differences in growth / gender differences in sport performance
- Phases of Motor Development
- Development of Fundamental Locomotor & Object Control Skills
 - Observation analysis
 - Newell's Model of Constraints
 - Factors influencing motor development

Assessment (includes both continuous and summative assessment)

Component	Course LOs Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment Rubrics
1. Written Exam	1,2,3,4,5 6	A1, A2,B1, C1,	50%	Individual	2 ½ hour written examination consisting of open-ended questions.
2. Movement Observation Assignment	1,2,3,5	A1, A2, A3, B2, B3, C1, C2, D1, E1	50%	Team	Appendix 1
Total			100%		

Formative feedback

For lecture-based sessions, you as student teachers will be asked key conceptual questions to help you understand the theoretical content and the implication of the content in guiding you to design appropriate activities and PE lessons for different school going age children and youths. You will also be required to share key summaries for what you learnt with your peers.

Verbal feedback for learning will be provided during each class session and the practical sessions where you will have the opportunity to learn FMS observation techniques and apply it to complete the written assignment.

Generic verbal and written feedback will be provided to the class for the assignment & written exam.

Learning and Teaching Approach

Approach	How does this approach support students in achieving the learning outcomes?
Lectures Q & A	Lectures will provide information for key learning concepts and theories and support understanding of key concepts. You will be engaged to share views / read and discuss published articles during lectures
Movement Observation Assignment	This is an opportunity for you to work collaboratively in pairs/groups, apply your observation skills, use FMS observational checklists and analyse children's observed fundamental movement performances. This assignment provides opportunities for observation analysis and discussion to assimilate the lecture content and peer learning. You are expected to observe 3 children performing selected fundamental movement skills, describe the children's FMS performance, compare and contrast the children's performance and use Newell's model of constraints as the theoretical framework to explain and discuss the similarities/differences in performance.

Reading and References

1. Gabbard, C.P. (2012). *Lifelong Motor Development* (6th Edition). Pearson Education. San Francisco
2. Gallahue, D., Ozmun, J. & Goodway, J. (2012). *Understanding Motor Development: Infants, Children, Adolescents, Adults* (7th Edition). McGraw-Hill, Boston
3. Graham, G., Holt/Hale, S.A., & Parker, M. (2010). *Children Moving. A Reflective Approach to Teaching Physical Education*. McGraw-Hill, New York.
4. Haywood, K.M. (2009). *Life Span Motor Development* (5th Edition). Human Kinetics Publishers: Champaign, Illinois
5. Malina, R.M. & Bouchard, C. (2004). *Growth, Maturation and Physical Activity*. (2nd Edition). Human Kinetics Publishers: Champaign, Illinois
6. Payne, V.G., & Isaacs, L. D. (2012). *Human Motor Development: a lifespan approach*. (8th Edition). McGraw-Hill, New York.
7. Teo-Koh, S.M. (2010). *FUN Start MOVE Smart: Fundamental Movement Skills for growing active learners*. Singapore Sports Council, Singapore

Course Policies and Student Responsibilities

(1) General

You are expected to complete all assigned pre-class readings and activities, attend all classes punctually and take all scheduled assignments and tests by due dates. 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 class discussions and activities.

(2) Absenteeism

Your participation and performance in in-class activities does your course grade. 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. There will be no make-up opportunities for in-class activities.

Academic Integrity

The University advises all students to respect all copyrighted works and encourages the purchase of original textbooks and/or other copyrighted materials that are required for their programme of study. You should not plagiarize or pass off as your own, the writing or ideas of another, without acknowledging or crediting the source from which the ideas are taken. The University takes a serious view of any form of plagiarism and infringement of copyright by students. A contravention of the provisions of the Copyright Act is deemed to be a breach of the University's rules and regulations, which could result in disciplinary action. Cheating, plagiarism and other forms of academic dishonesty are considered serious offences for which disciplinary penalties will be imposed. Please refer to the NTU Academic Integrity Framework available on the NTU Portal for more details.

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.

Course Instructors

Instructor	Office Location	Phone	Email

Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
1	Fundamental concepts and theoretical perspectives in motor development	1, 4	Haywood & Getchell (2009). Chaps 1, 2, 4, 5
2	Physical growth, maturation and aging Factors affecting growth & development	1,2,3,4	
3	Development and Aging of body systems	1,2,3,4	Haywood & Getchell (2009). Chap 4
4	Motor development phases thru' the lifespan Newell's Model of Constraints	1,2,3,4	Haywood & Getchell (2009). Chaps 1, 6 & 10
5	Sensory perceptual development	1, 2, 6	
6	Fundamental Movements Skills Development of Human Locomotion	1,2,3,4, 5,6	Haywood & Getchell (2009). Chaps 6 & 7 Selected Readings
7	Development of Object Control Skills		Haywood & Getchell (2009) Chaps 8 & 9
8	Development of Manipulative Skills		
9	Perception and action in development	1,2, 6 5	Haywood & Getchell (2009) Chaps 10 -13, 18
10	Gender differences in growth / sport performance	1, 2, 3, 6	

11	Socialisation	3,4,5	
12	Youth Sports	1,2,3,4	
13	Revision		

Appendix A1: Movement Observation Assignment Assessment Criteria (50%)

This is a group project. The objective of this assessment is to give students the opportunity to observe children's fundamental movement skills and apply their understanding of motor development & motor skill acquisition to discuss how and why the observed participants moved. It is expected that each individual will contribute equally to the team's final product and one another's learning. Individual student's scores may vary according to feedback from other team members or observations by the instructor.

Marking Rubric

	A+, A, A- (10)	B+, B (8)	B-, C+, C (6)	D+, D (4)	F (2)
Quality of writing & presentation (max 10)	Well-structured report. Very minor grammatical and spelling errors.	Some improvement in structure possible. Few grammatical and spelling errors.	Improvement in structure needed. Obvious grammatical and spelling errors.	Poor structure. Many spelling and grammatical errors.	Coherent structure absent. Copious spelling and grammatical errors.
Description of Participants (max 10)	Very detail & clear description of participant's background. Excellent pics & illustrations	Detail & clear description of participant's background. Minor info missing. Good pics & illustrations	Average detail & description of participant's background. Missing key info. Average pics & illustrations	Weak to poor description of participant's background. Very little relevant info provided. Poor quality pics & illustrations	Very little useful info provided about Participants. No relevant pics / illustrations /
Skill analysis of Participants' FMS performance Discussion & Implications (max 10)	Excellent, accurate description & analysis of FMS performance. Excellent discussion of observed perf and use of Newell's model to explain observed perf differences. Conclusions well stated	Good description & analysis of FMS performance. Good discussion of observed perf and use of Newell's model to explain observed perf differences. Conclusions fairly well stated	Fair description & analysis of FMS performance. Average discussion of observed perf (missing some key points) and use of Newell's model to explain observed perf differences. Conclusions could be improved for relevance.	Weak description & analysis of FMS performance. Weak discussion of observed perf and use of Newell's model to explain observed perf differences (missing many key points). Conclusions very weak or not provided.	No effort demonstrated in describing P's performance. No relevant discussion of observed FMS perf and very poor or no use of Newell's model to explain observation. Conclusion not presented
Evidence (video/ images), skill checklists used (max 10)	All figures, tables, video images/ skill checklists & charts very well presented.	Most figures, tables, video images/ skill checklists & charts well presented.	Figures, tables, video images/ skill checklists & charts need some improvement.	Weak presentation of figures, tables, video images/ skill checklists	Very poor presentation of figures, tables, video images/ skill checklists & charts

<p>Individual Contribution</p> <p>(max 10)</p>	<p>Contributed significantly to the overall project. Present for all lab classes and group meetings. Positive feedback from all group members.</p>	<p>Contributed to the overall project. Present for all lab classes and group meetings. Generally positive feedback from all group members.</p>	<p>Contributed to the overall project. Present for most of the lab classes and group meetings. Generally positive feedback from group members.</p>	<p>Contributed to some aspects of the overall project. Missed most of the group meeting and lab classes.</p>	<p>Absent for most or all group meetings and lab classes. Did not contribute to group discussions or project.</p>
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