



**Year 1 Winter 2023**  
**SCSD 609 - Neuromotor Disorders**  
**Number of credits: 3 Credits**  
**Course Time: Wednesday 9am-12:15pm**  
**Location: SCSD 869**

**Instructors:**  
**Kalyna Franko M.Sc.(A.), S-LP(C) and Keren Ritter M.Sc., S-LP(C)**  
Speech-language pathologist                      Speech-language pathologist  
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**COURSE DESCRIPTION/OVERVIEW:**

The focus of this course will be on the assessment and management of motor speech disorders associated with both acquired and developmental neuromotor disorders. It provides the basis for understanding the organization and function of the nervous system in controlling speech production. The objective is to identify the perceptual characteristics of various motor speech disorders necessary to assess and treat motor speech disorders in children and adults.

**LEARNING OBJECTIVES/OUTCOMES (COMPETENCIES):**

**UNIT ONE: Basic Requirements (Audiology and Speech-Language Pathology)**

*The audiologist and speech-language pathologist demonstrate basic knowledge of:*

- 1.1 Anatomy and Physiology**
- 1.1.i Respiratory system (respiratory tract, chest wall, diaphragm, and abdominal wall).
  - 1.1.ii Articulatory, phonatory, resonatory, and swallowing systems (larynx, pharynx, mouth, and nose).

- 1.2 Neuroanatomy and Neurophysiology**
- 1.2.i The structure and function of the nervous system.
  - 1.2.v Methods of investigating the nervous system.

**UNIT TWO: Knowledge Expert**

*The speech-language pathologist demonstrates knowledge of:*

- 2.2 Motor Speech Disorders**

2.2.i The neurological basis for normal speech production and how damage to the central and peripheral nervous systems affects respiratory, phonatory, resonatory, and articulatory subsystems, as well as the impact on speech production.
2.2.ii Different theoretical frameworks for motor speech disorders (e.g., dysarthria, apraxia of speech).
2.2.iii Characteristics of motor speech disorders including the respiratory, phonatory, resonatory, articulatory, and prosodic features.
2.2.iv Etiological factors related to motor speech disorders and the impact on prognosis (e.g., acquired vs. congenital conditions, stable vs. progressive conditions).
2.2.v Numerous neurological or developmental disorders that may accompany motor speech disorder (e.g., amyotrophic lateral sclerosis, Parkinson’s disease, Down Syndrome) and their impact on assessment, intervention, and prognosis.
2.2.vi The effect of motor speech disorders on speech intelligibility, as well as the psychosocial, educational, and vocational impact.

**UNIT THREE: Clinical Expert - Cross-Cutting Assessment and Intervention Standards**

*The speech-language pathologist demonstrates the ability to:*

**3.1 Identify individuals requiring speech-language pathology services:**

3.1.i Collect and review information from relevant sources (e.g., referrals, reports, consultation) to determine an individual’s need for a speech-language pathology assessment.
3.1.ii Engage in screening programs (e.g., infant, school-aged, feeding and swallowing) to identify individuals requiring speech-language pathology services.

**3.2 Plan, conduct, and adjust an assessment:**

3.2.i Collect and analyze pertinent information prior to the assessment, including intake information and previous reports.
3.2.ii Use principles of assessment to develop assessment plans (e.g., tools, strategies, resources, environment) that reflect background information about the client (including personal and environmental factors), known or suspected primary and concomitant disorders (e.g., medical, emotional), knowledge of normal and disordered communication or swallowing, as well as risk factors for communication or swallowing disorders; modify this plan when appropriate.
3.2.iii Demonstrate knowledge of principles underlying clinical assessment, including standardized and nonstandardized procedures and their advantages, disadvantages, limitations, representativeness, and applicability to the individual management plan.
3.2.iv Conduct a clinical interview with the client and other pertinent individuals that is relevant to the diagnosis, presenting complaints, and management of the communication or swallowing disorder.
3.2.v Administer valid, accurate, and reliable assessment measures and/or procedures (quantitative and/or qualitative), as appropriate to the client and circumstances, and accurately listen to, observe, and document all responses and observations.

3.2.vi Assess the impact of the client's personal and environmental factors (e.g., coping style, housing) in the client's environment (home, community, school, work) on communication or swallowing needs and effectiveness.

### **3.3 Analyze and interpret assessment results:**

3.3.i Analyze formal, informal, quantitative, and qualitative assessment results, including accurate scoring and interpretation of standardized tests.

3.3.ii Formulate a diagnostic statement about the client's communication or swallowing skills, including the impact on daily activities and educational, vocational, and psychosocial needs; include functional prognosis, as appropriate.

### **3.4 Develop and share recommendations based on assessment results:**

3.4.i Develop evidence-informed recommendations, including potential referrals to other professionals, based on the assessment findings and available resources.

3.4.ii Discuss the assessment results, recommendations, and implications with the client and other relevant individuals, as permitted by the client.

### **3.5 Develop and implement a realistic, evidence-informed, and measurable intervention plan:**

3.5.i Utilize a biopsychosocial framework (e.g., the World Health Organization International Classification of Functioning, Disability, and Health) to establish and prioritize intervention aims that reflect the client's strengths, needs, values, expectations, and constraints.

3.5.ii Develop specific, measurable, realistic, time-limited targets to reach the aims.

3.5.iii Demonstrate knowledge of different approaches to intervention (including assistive devices/systems), the evidence and theoretical bases behind the approaches, their advantages, disadvantages, limitations.

3.5.iv Select and apply an appropriate intervention approach and service delivery model (e.g., periodic review, consultation, facilitator training, direct 1:1 therapy, direct group therapy, home/school program, interdisciplinary therapy) that is applicable to the client context.

3.5.v Develop and implement appropriate clinical activities and environmental supports for meeting treatment targets and facilitating generalization and maintenance of skills and strategies, including use of appropriate modalities, materials, and technologies, use of feedback and modelling, and provision of education, support, training, and counselling to the client, family and/or significant others.

3.5.vi Develop and implement outcome measures to evaluate progress on an ongoing basis.

3.5.vii Modify or discontinue the intervention (goals, approach, service delivery model) in keeping with outcomes and client feedback.

3.5.viii Refer to other healthcare or educational professionals as required; identify and recommend alternative services when client needs are beyond the professional limitations of the speech-language pathologist.

3.5.ix Provide training, tasks, and feedback to support personnel to meet the clinical objectives, as appropriate to the jurisdiction, clinical activity, and individual competencies.

3.6 Share knowledge of concepts and strategies for prevention of communication and swallowing disorders across the lifespan (e.g., primary, secondary, and tertiary preventive strategies).

#### UNIT FOUR: Clinical Expert - Disorder-Specific Assessment and Intervention Standards

*The speech-language pathologist demonstrates the ability to:*

##### 4.2 Motor Speech Disorders

4.2.i Assess physiological support for speech production (including respiratory, phonatory, articulatory, and resonatory subsystems), using instrumental and non-instrumental procedures as appropriate.

4.2.ii Assess phonation, resonance, articulation, and prosody using perceptual and acoustic measures.

4.2.iii Assess speech intelligibility and factors that influence it.

#### INSTRUCTIONAL METHODS:

Lectures, labs, simulation centre project, assignments on myCourses, and student participation.

#### REQUIRED COURSE MATERIALS

Duffy, J. R. (2019). *Motor speech disorders: Substrates, differential diagnosis, and management* (4<sup>th</sup> ed.). Elsevier Canada. ISBN: 9780323530545

#### OPTIONAL COURSE MATERIALS

2021: American Speech-Language-Hearing Association. (2007). Childhood apraxia of speech [Technical report]. (Available on myCourses)

Darley, F., Aronson, A., and Brown, J. (1975). *Motor Speech Disorders*. W.B. Saunders Co.

Dworkin, P.I. (1991). *Motor Speech Disorders: A Treatment Guide*. Mosby Yearbook.

Freed, D. (2020). *Motor Speech Disorders Diagnosis and Treatment*. Plural Publishing Inc.

Lof, Gregory L. "Nonspeech Oral Motor Exercises: An Update on the Controversy." American Speech-Language-Hearing Association Convention New Orleans, LA November 20, 2009: pages 1-9. (Available on myCourses)

McNeil, M. (2008). *Clinical Management of Sensorimotor Speech Disorders* (2<sup>nd</sup> ed.). Thieme.

Murray, E., McCabe, P., Ballard, K.J. "A systematic review of treatment outcomes for children with childhood apraxia of speech." American Journal of Speech-Language Pathology 23 (3), 486-504 August 2014. (Available on myCourses)

Rvachew, S. & Brosseau-Lapre, F. *Developmental Phonological Disorders: Foundations of Clinical Practice* (2nd ed.). San Diego, CA, Plural Publishing, 2016.

Swigert, N.B. (2010). *The Source for Dysarthria* (2<sup>nd</sup> ed.). LinguSystems, Inc.

Yorkston, K., Beukelman, D., Strand, E., Hake, M. (2010). *Management of Motor Speech Disorders in Children and Adults* (3<sup>rd</sup> ed.). Pro-Ed. ISBN-10: 1416404341 ISBN-13: 978-1416404347

## COURSE CONTENT

Class	Date	Description	Course Materials <i>(optional readings in italics)</i>	Assignments Due
1	Jan. 4, 23	Introduction to Motor Speech Disorders  Neurologic Bases of Motor Speech	Duffy Chapter 1 <i>Swigert p. 7-12</i> <i>Yorkston Chapter 1</i> Duffy Chapter 2 <i>Swigert p. 12-21</i>	<i>Anatomy Modules 1 and 2 open</i>
2	Jan. 11, 23	Examination of Motor Speech Disorders + Lab	Duffy Chapter 3 <i>Swigert p. 23-43</i> <i>Yorkston Chapter 2</i>	Submit Lab sheet
3	*Jan. 18, 23	Principles of Management of the Dysarthrias (*Asynchronous lecture, no Lab)	Duffy Chapter 16 Duffy Chapter 17 <i>Yorkston Ch. 4</i> <i>Swigert p. 45-75</i>	<b>Anatomy Modules 1 &amp; 2 due by end of day (11:59pm)</b>
4	Jan. 25, 23	Flaccid Dysarthria + Lab	Duffy Chapter 4	Submit Lab sheet
5	Feb. 1, 23	Spastic Dysarthria + Lab	Duffy Chapter 5	Submit Lab sheet
6	Feb. 8, 23	Ataxic Dysarthria + Lab	Duffy Chapter 6	Submit Lab sheet
7	Feb. 15, 23	Hypokinetic Dysarthria & Hyperkinetic Dysarthria + Lab	Duffy Chapter 7 Duffy Chapter 8	Submit Lab sheet
8	Feb. 22, 23	Unilateral upper motor neuron (UUMN) Dysarthria  Acquired Apraxia of Speech (AOS) and Management + Lab	Duffy Chapter 9  Duffy Chapter 11 Duffy Chapter 18	Submit Lab sheet  <i>Midterm Exam open (due by Friday, February 25, 11:59pm)</i>
	Mar. 1, 23	Reading Week – no class		
9	Mar. 8, 23	Mixed & Degenerative Dysarthrias + Lab	Duffy Chapter 10	Submit Lab sheet
10	Mar. 15, 23	<b>Guest lecturer: Keren Ritter, S-LP</b>  “Developmental motor speech disorders – Assessment”  <i>Cases given for SIM Centre</i>	Rvachew & Brosseau-Lapre Chapter 3, p. 348-356	<i>Transcription Assignment given</i>

<b>11</b>	<b>Mar. 22, 23</b>	<b>Guest lecturer: Keren Ritter, S-LP</b>  “Developmental motor speech disorders – Treatment”  <i>SIM Centre preparation: Developmental Motor Speech Disorders – Assessment and Parent Feedback</i>	Lof, Gregory L. article  Murray, E., McCabe, P., Ballard, K.J. article  ASHA (2007) Childhood apraxia of speech technical report	<b>Transcription Assignment due (submission by 9am/in-class)</b>
	<b>**Tuesday</b> Mar. 28, 23	<b>SIM Centre</b> <b>**scheduled on Tuesday</b>		
<b>12</b>	Mar. 29, 23	Differential diagnosis of MSD & Report writing + SIM Centre review	Duffy Chapter 15 <i>Yorkston Ch. 3</i>	<i>Report Assignment given</i>
<b>13</b>	Apr. 5, 23	Treatment of MSD + Lab (Differential Diagnosis and Treatment)	<i>Yorkston Ch. 5-10</i> <i>Swigert Ch. 4-9</i>	Submit Lab sheet
	Apr. 12, 23	No class (Monday schedule)		<b>Report Assignment Due by end of day (11:59pm)</b>

## EVALUATION

<b>Name of Assignment or Exam</b>	<b>Targeted Competencies</b>	<b>Due Date</b>	<b>% Final Grade</b>
Labs (8 total)	2.2.i-vi, 3.3.i-ii, 4.2.i-iii	Submit Lab sheets in myCourses following lab completion	20%
Anatomy Modules 1 & 2	1.1.i-ii, 1.2.i, 2.2.i	Submit responses to Check In Questions by January 18, 11:59pm	5%
Midterm Exam	1.1.i-ii, 2.2.i-vi, 3.3.i-ii, 3.5.i-iii	Open February 22; due February 25, 11:59pm	20%
Childhood apraxia of speech (CAS) Transcription assignment	3.2.v-vi, 3.3.i-ii, 4.2.i-iii	March 22, 9am/in-class	20%
Participation in CAS Simulation Centre module	3.4.i-ii	March 28 (Tuesday)	5%
Report Assignment	3.2.i-vi, 3.3i-ii, 3.4.i-iii, 3.5.i-ix	April 12, 11:59pm	30%

Labs (20% total; 8 labs, 2.5% each) (compulsory; clinical hours apply)

In-person labs following lectures using case-based audio and video recordings to develop your listening and diagnostic skills. Lab sheet must be submitted via myCourses following each lab for a completion grade.

Anatomy modules 1 & 2 (5% total; 2 modules, 2.5% each)

Two online learning modules on Anatomy related to motor speech disorders will be available on myCourses on January 4<sup>th</sup>. Complete both modules and submit your responses to the Check In Questions via myCourses by end of day January 18<sup>th</sup> (11:59pm) for a completion grade.

Midterm exam (20%)

The midterm exam will be available on myCourses on February 22<sup>nd</sup> at 12:15pm. It should take approximately 2 hours to complete. The exam contains short- and long-answer questions related to theoretical knowledge and clinical cases. Submission via myCourses is due by end of day February 25<sup>th</sup> (11:59pm).

Childhood Apraxia of Speech (CAS) Transcription assignment (20%)

You will be provided with a transcription of a child with a motor speech disorder to analyze according to the instructions provided. Due by the time of the lecture (9am) on March 22<sup>nd</sup>; submissions will be accepted online or in-person.

Participation in CAS Simulation Centre module (5%) (compulsory; clinical hours apply)

Mandatory course activity on Tuesday, March 28<sup>th</sup>. You will receive case information based on the evaluation of a child with a motor speech disorder ahead of time. In the simulation, you will interpret the results and discuss a treatment plan with the parents of the child (actors) in a safe and risk-free environment. Afterwards you will debrief and receive feedback. Time will be dedicated to reviewing the activity during the following lecture (March 29<sup>th</sup>).

Report assignment (30% total + 2 Entrustable Professional Activities, EPAs)

You will write an assessment report and intervention plan based on case information provided. A sample report will also be provided to use as a model. Due by end of day on April 12<sup>th</sup> (11:59pm). Late submissions will have 2% per day subtracted from the grade. This assignment additionally contains 2 EPAs: Assessment – Integrative Skills 1.1 and Documentation 1.3. You will receive an Assessment Grid outlining the requirements for achieving each EPA. Written formative feedback will be provided regarding each EPA.

**LATE ASSIGNMENTS:** Students are expected to complete assignments, exams, and presentations at times assigned by instructors. In the event that a student is unable to complete work on time, they should contact the instructor and provide a reason for requesting an extension prior to the deadline. Instructors will indicate to the student whether their reason is sufficient to warrant an extension. All medical excuses must be followed by a letter from a doctor specific to that particular absence. Unexcused incomplete work (assignment, exams, and presentations) will result in failure or reduction in grade points.

**ABSENCE FROM EXAMINATION:** Supplemental examination will only be given to students who have a medical certificate or who are absent for religious holidays.

## MCGILL POLICY STATEMENTS

### Language of Submission

“In accord with McGill University’s [Charter of Students’ Rights](#), students in this course have the right to submit in English or in French any written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.” (Approved by Senate on 21 January 2009)

« Conformément à [la Charte des droits de l’étudiant](#) de l’Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté, sauf dans le cas des cours dont l’un des objets est la maîtrise d’une langue. »

### Academic Integrity

“McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the [Code of Student Conduct and Disciplinary Procedures](#)” (Approved by Senate on 29 January 2003) (See [McGill’s guide to academic honesty](#) for more information).

« L’université McGill attache une haute importance à l’honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l’on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l’étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le [guide pour l’honnêteté académique de McGill](#). »

### Additional Statements

- The [University Student Assessment Policy](#) exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads. All students and instructors are encouraged to review this Policy, which addresses multiple aspects and methods of student assessment, e.g., the timing of evaluation due dates and weighting of final examinations.
- © Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of [copyright](#) can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.
- Please read the [Guidelines for Instructors and Students on Teaching, Learning, and Assessment](#) and this course outline. You will be notified through a “pop-up” box in Zoom if part of a class is being recorded (see image below). By remaining in sessions that are recorded, you agree to the recording, and you understand that your image, voice, and name may be disclosed to classmates. You also understand that recordings will be made available in myCourses to students registered in the course.



- The University is committed to maintaining teaching and learning spaces that are respectful and inclusive for all. To this end, offensive, violent, or harmful language arising in contexts such as the following may be cause for disciplinary action:
  1. Zoom sessions, including Username (use only your legal or preferred name), virtual backgrounds, “chat” boxes, whiteboard annotations, breakout rooms
  2. myCourses discussion fora
- As the instructor of this course, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and the [Office for Students with Disabilities](#), 514-398-6009.
- Many students may face mental health challenges that can impact not only their academic success but also their ability to thrive in our campus community. Please reach out for support when you need it; many [resources](#) are available on-campus, off-campus and online.
- If you have difficulty affording food or if you lack a safe and stable place to live and believe that this may affect your performance in this course, I encourage you to contact the [Dean of Students](#) who can connect you with support services. If you feel comfortable doing so, please let me know as well, so we can discuss how I can best support your learning.
- [End-of-course evaluations](#) are one of the ways that McGill works towards maintaining and improving the quality of courses and the student’s learning experience. You will be notified by e-mail when the evaluations are available. Please note that a minimum number of responses must be received for results to be available to students.
- In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.
- Mobile computing and communications devices are permitted in class insofar as their use does not disrupt the teaching and learning process.