



McGill

Faculty of
Medicine and
Health Sciences

School of
Communication Sciences
and Disorders

Year 1, Fall 2023

SCSD-630 Research Methods

Number of credits: 2 credits

Course Time: Friday 10:00 am – 12:00 pm (01-Sep through 01-Dec 2023)

Location: SCSD Class Room 862 (in person) [+ occasionally in Zoom]

Instructor: Karsten Steinhauer

Office: SCSD, Room 817

Office Hours: By appointment (please set up by email)

Email: karsten.steinhauer@mcgill.ca

COURSE DESCRIPTION/OVERVIEW:

The purpose of this course is to cultivate critical thinking and provide a source of current information on how to read, interpret and evaluate research so as to help the student become a critical consumer of research in communication sciences and disorders. The course will also help those who wish to design research that will further their own professional success.

LEARNING OBJECTIVES/OUTCOMES (see also *SLP-related Roles and Competencies* on p.3 below):

After this course, you should be able to ...

- characterize the three components of evidence-based practice (EPB)
- explain the major principles of scientific research
- characterize different research approaches including strengths and weaknesses
- explain relevant concepts (e.g., types of variables, threats to validity, statistical tests)
- characterize and explain criteria for research planning and strong designs
- describe how a compelling research paper should be organized
- critically analyze and present research papers and clinical research [in a team!]
- discuss research papers (including their merits and shortcomings) with different target groups (e.g., colleagues, clients) as member of a team + defend your position
- explain and use the PICO approach to ask/extract meaningful questions about evidence
- carry out literature searches online, describe how to get access to articles of interest

INSTRUCTIONAL METHODS:

- Lecture/Seminar, including group projects, power-point presentations and discussions.
- You will need a computer/laptop to access files/quizzes/final exam in *MyCourses*.

COURSE MATERIALS:

Required Readings:

- **Textbook: *Evaluating Research in Communicative Disorders* (5th edition)**
Schiavetti, N. and Metz, D.E. (2006)
- **Research articles, book chapters, PDF versions of slide presentations**
- **All readings and power point presentations (in PDF format) will be posted on *MyCourses***

COURSE SCHEDULE AND ORGANIZATION

3 parts: **A: Lectures**, Classes 1-5 +7; **B: Practice**, Classes 8-11; **C: Student presentations**, Classes 12-14)

(Note: Schedule may change. Please check **MyCourses** for updates and additional readings.)

Week	Date	Topic	Reading (<i>before class</i>)	TODOs (<i>before class</i>)
1	Sept 01	Overview of the Course, Intro, Sci Method, Types of Res Questions	Ch. 1	
2	Sept 08	Variables, Res Strategies, Research Designs, Threats to Validity	Ch. 1+2, Ch. 4 (pp 109-115) Ch 5 (pp 131-149)	
3	Sept 15	Research Planning I+II: Grp+Single Subject, strong/weak designs; Intro to PICO	Ch. 3+4 (pp 115-127) Ch. 5 (pp 149-166)	Creation of 6 groups complete (assigned by KS)
4	Sept 22	Data org. + analysis – Statistics I	Ch. 6	Complete Quiz # 1 b/w Sept 15 and Sept 22
5	Sept 29	Data org. + analysis – Statistics II	Ch. 6	Start to identify paper + scenario for your presentation
6	Oct 06 (No class)	FALL BREAK		
7	Oct 13	Jill Boruff's Library Workshop + Q&A on EBP and PICO		
8	Oct 20	Evaluating Research Articles I	Ch. 7 - 9; Articles as assigned	Complete Quiz #2 by Oct 20
9	Oct 27	Evaluating Research Articles II	Ch. 7 - 9; Articles as assigned	! Submit articles for approval for Student Presentations! (at least 2 weeks before your presentation)
10	Nov 03	Evaluating Research Articles III	Ch. 7 - 9; Articles as assigned	
11	Nov 10	Evaluating Research Articles IV	Ch. 7 - 9; Articles as assigned	
12	Nov 17	Student Presentations 1+2	Students' target articles	See specific instructions below* and in MyCourses
13	Nov 24	Student Presentations 3+4	Students' target articles	
14	Dec 01	Student Presentations 5+6	Students' target articles	
	Dec 08	Assignment of Take Home Final Exam Submit using this Filename format: Firstname_Lastname_RM_FINAL.doc (e.g., Jane_Doe_RM_FINAL.docx)	Read papers as specified in instruction	Download + complete final exam Submit by Dec 15, 5 pm (by Email)

* Submission deadlines for Student presentations:

- (1) **2 weeks before your presentation at the latest:**
 - Presenters send research article + scenario to me (for approval), then send *approved article* + scenario to Discussants (all by email)
- (2) **1 week before presentation (by email):**
 - Discussants send 2-3 major questions to me (*not* to Pres)
- (3) **Wednesday 4 pm before your presentation at the latest:**
 - Presenters send power point file (by email to me)

EVALUATION:

It is expected that you have read the assigned chapters and papers prior to the class. This includes the papers selected for practice, exercises, and for student presentations.

Name of Assignment or Exam	Targeted Competencies	Due Date	% of Final Grade
Online Quiz # 1	1.9 i,ii, iii (Curriculum Standards AUD-SLP 2021)	Sept 22	10 % (individ.)
Online Quiz # 2	1.9 ii, iii, iv, v	Oct 20	10 % (individ.)
Power point presentation + defense of your critical analysis of a research article (~25 min + 20 min discussion; given by groups of 4-5 students)	1.9 i - vi	Nov 17 – Dec 01 [Papers and slides are due earlier]	30 % (group)
Critical questions and (interactive) discussion of one of the <i>other</i> groups' presentations. (~ 20 min, as 'Discussants', same group members as for presentation)	1.9 i - vi	Nov 17 – Dec 01 [Questions to presenting group are due earlier]	15 % (group)
Final Exam (take home and online in myCourses)	1.9 i - vi	Assigned : Fri, Dec 8 Due: Fri, Dec 15, 5 pm	25 % (individ.)
Other: Class participation , contributions to group activities, discussions, and <u>peer-review</u> in class	1.9 i - vi	Sept 01 – Dec 01	10 % (individ.)

SLP-related Roles and Competencies relevant to this course:

ROLE 1: CENTRAL ROLE/CONTENT EXPERT

<i>Foundational principles</i>	
<i>Apply basic and specialized knowledge of human communication, disorders and interventions along with critical problem-solving skills to evaluate basic and clinical research.</i>	
Integrate your knowledge as an S-LP with new knowledge in research methods and stats to determine the relevant strengths and weaknesses of research designs, studies and published data.	Lectures/seminars/discussions in class; assignment; student presentations; final exam.

ROLE 2: COMMUNICATOR

Oral and Written Communication	
Provide relevant information effectively (including in group settings), communicate in a respectful manner, and address challenging communication issues.	
Inform (i) authors, (ii) editors, and (iii) other individuals or groups with varying interests (such as clients, colleagues, higher-ups, researchers, companies) about your research evaluation and defend your ground with rational arguments. Learn to 'respectfully disagree' with others if their arguments are weak.	Article evaluations in class; student presentations in class; final exam

ROLE 3: COLLABORATOR

Collaborator with other professionals	
Work with others to provide integrative approaches or add SLP expertise, while respecting different roles.	
Develop arguments and strategies to enter a controversial discussion with a group of 'opponents'. Perhaps assign <i>apriori</i> responsibilities within your group.	Student presentations (both as main presenters and 'discussants').

ROLE 4: ADVOCATE

Client advocacy, client empowerment, and public education	
You may advocate for clients, provide information and tools to facilitate their access to best services, and advocate for services based on emerging trends.	
Stand up for individuals or groups of clients to promote a better service that is now available (EBP, e.g., based on new research).	Certain discussions and student presentations in class

ROLE 5: SCHOLAR

Continuous learning and Evidence-informed practice	
Identify and respond to personal learning needs, maintain currency, and integrate new learning into practice	
Show how critical evaluation of previous and recent research influences best practice and helps establish more effective interventions.	Research evaluations in class; student presentations; assignment

(ROLE 5: SCHOLAR cont.)

Facilitation of the learning of others

Share knowledge

Help other group members and classmates with concepts and topics you are already more familiar with.

Group activities, group presentations.

ROLE 6: MANAGER

Practice management

Set priorities and manage activities effectively.

Develop a time management plan to meet the demands of the workload of this course

Discussions and presentations in class, assignment, exam.

ROLE 7: PROFESSIONAL

Professional integrity

Identify, evaluate and comply with codes of ethics

Demonstrate how research involves ethical decisions at multiple levels, how these can threaten a study's validity, and how to address these issues.

Discussions in class; student presentations.

McGill Policy and Statement:

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 (see www.mcgill.ca/students/srr/honest/) for more information).

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.

Copyright

*"© Instructor-generated **course materials** (e.g., handouts, notes, summaries, exam questions, etc.) **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."*

Any kind of recording (audio or video) in class needs prior, explicit approval by the instructor !

Student presentations (ppt) and critical (controversial) discussions (= also an EPA):

1. Instructor will **create 6 groups of 5 students** (by Sept 15, to be discussed in class). As 'Presenters', each group will prepare a **critique of a research article** and give a **25-minute power point presentation in a specific 'scenario'** (see point 2 below), **followed by a controversial discussion with another group of 'discussants'**, during the last 3 weeks of the course. That is, on different dates, each of the 6 groups will serve (a) as 'Presenters' and (b) as 'Discussants' for another group. All 5 students in a group must be involved in the preparation, the presentation, and the discussion (but different students can assume different roles according to their expertise, such as 'expert for statistics' etc.).
2. **Scenarios:** Each presentation and the subsequent discussion will **simulate a specific scenario** that is representative of a realistic context in which SLPs have to evaluate and discuss research papers (to be discussed in class). Example: "a patient/client and her family (=Presenters) have heard about a new treatment (the one promoted in the target article selected by Presenters) and want to convince the clinical team (= Discussants) to change the current treatment. Presenters highlight strengths of the research article. Discussants will argue against this by pointing out weaknesses of the research." Thus, **the presenting group will be paired up with a second group (the 'discussants'), whose task is to represent a relevant target group (e.g., conference audience, colleagues, clients or their relatives/caregivers) and prepare multiple critical questions (~ 2 per Discussant).** The discussion will be an interactive exchange between the presenting group and the discussants to clarify the questions and counter arguments prepared by the latter. **These questions or counter arguments should be sent by the discussant group to me at least 1 week prior the presentation. However, no contact between the two groups (to prepare for their scenario) is allowed.** Both groups will be evaluated independently, based on their respective preparation, knowledge, performance and argumentation (30% of their total grade for the presenting group, 15% for the discussants). As in the real world, a group that invests some extra time in preparing arguments, finding additional articles or information that support their perspective (e.g., on the internet), will have an advantage. One main objective of these group debates is to **practice controversial but rational discussions of research-based findings.** Part of this is to stand your ground based on good argumentation and to **'respectfully disagree'** with your opponents. Showing respect and avoiding 'animosities' while disagreeing on certain interpretations or priorities is an important aspect of research culture, both in academic and clinical contexts. **Both (a) the level of professional preparation, presentation, and discussion as member of a team and (b) the groups' ability to lead a controversial, but respectful and rational debate will also be evaluated as an EPA** (EPA evaluation sheet will be posted in MyCourses). During our course, each of the six student groups will assume the role of both presenters and discussants, but never on the same day. **The ultimate scenario types and group pairings will be determined by the course instructor.**
3. **Late October or early November (no later than 2 weeks before presentation date!):** Identification of articles and scenarios should be completed by presenting group, and **Presenters send article (PDF file) + scenario description (0.5 page) to me for approval.** Note that the scenario should specify the roles of each presenting group member as well as the general roles of the Discussants (e.g., 'female client XY (59 years) with disorder Z and four family members', or 'a group of SLPs who oppose our treatment approach', or 'an interdisciplinary group of researchers at a conference'). Discussants may then further specify their own respective roles.

Upon approval by course instructor, Presenters will **send article + scenario to 'their'**

Discussant group. At this point, both the Presenters and the Discussants can schedule optional (separate) meetings with me (usually for ~20 min, after class or in Zoom) to discuss questions and strategies, if they wish. If so, please make sure that you schedule a meeting well in advance (not last minute), as I may not be available on short notice.

No later than 1 week before presentation date: Discussants will send **their major questions and counter arguments** to the Instructor, but without contacting the Presenters.

4. **By Wednesday (4 pm) before your presentation:** Presenters email me a copy of their final presentation (in both **ppt AND pdf format**), to be shared in my courses on presentation day.
5. The **presentation** should last **approximately 25 minutes** (~5 minutes per student) and will be followed by a **discussion of 15-20 min**. If you wish, each presenting group and each group of 'discussants' can meet with me for 15 to 30 min to discuss their presentation in advance (please schedule a meeting ~2 weeks in advance! – I may not be available on short notice).
6. Begin your presentation with a **very brief clarification of the scenario (and everybody's roles) and provide a brief overview of the objective/relevance of the study** (research questions and approach, main outcome). Identify the type of design, the independent and dependent variables, participant groups, task, data analysis, results and interpretation. [**~ 5 min total**]
7. Next, **taking your specific scenario into account** (see point 2), **critique the most important strengths and weaknesses** of the research article to make your point. **Make sure you understand the design, the statistical analyses and the authors' data interpretation.** Do you agree with them? Overall, can we trust their findings? Would you have endorsed publication of this article? Why (not)? What could have been better? (Minor or Major revision?) Are you aware of other (better?) studies that offer alternatives? [**~17 min**]
8. The structure of the **following discussion** largely depends on the specific type of scenario, but **should equally involve all students of both groups**. The group of Discussants (bringing up critical questions) may wish to organize (and ask) their questions according to themes (and explain to the class – and to the Presenters – what they are doing). Depending on which target group the discussants represent, the discussion may be somewhat confrontational (e.g., researchers representing a different 'camp', colleagues questioning your intervention approach) or rather focus on the concerns of worried parents, but **should always be respectful and professional! Importantly (and irrespective of the specific scenario), all discussions must focus primarily on relevant aspects of the research paper** and NOT (e.g.) on the (assumed) family relations of your 'client' or special regulations in Quebec (unless their relevance is evident and directly related to the research paper).
9. **Grades** will be based on the following:
 - **Presentation (30%):** A good presentation (and discussion) is characterized by focus on the main points (research question, methods, findings, conclusion, criticism), **compelling structure of the arguments, clarity, good structure** (general → details) and appropriate time considerations. **Each member of your group should be familiar with the entire article, but you may also assign 'expert roles' to individuals** (e.g., expert on statistical analyses, expert on alternative approaches, or expert on authors' background, etc.). **Peer evaluation forms** filled in by your classmates will also be taken into account (see info below and preliminary version attached, details will be discussed in class).

- **Questions and discussion prepared by ‘discussants’ group (15%):** While the type of question largely depends on the specific scenario, questions should generally **be critical and challenging and allow the presenting group to respond based on their interpretation of the target paper**. Make sure that the major questions (to be sent to the instructor) are clear and concise and represents your main concerns or interest. You might want to prepare some additional ‘ammunition’ for the discussion and ensure that each member of your group is familiar with the article and well prepared to counter the presenters’ arguments if necessary.
- **Two take-home assignments or online-quizzes on basic concepts (worth 10% each) and a Take-home Final Exam (worth 25%):** Note: if appropriate, the target article(s) to be evaluated will be made available in advance! Criteria for the evaluation are **(i) knowledge, thought, detail, accuracy and originality** (where applicable), **(ii) coherence of argumentation, (iii) structure, organization and focus**.
- **Participation in class (group activities, discussions, etc.; worth 10%).** Active participation in class is key to success in this course. There will be many opportunities to contribute with questions, comments, suggestions. For certain classes (e.g., the one on stats), you may have to prepare specific questions or topic in advance. During a student presentation and discussion [‘scenario’], all students who are not members of the participating groups are required to take notes and fill out a peer evaluation sheet (for both the presenting group and the ‘discussants’).

Completed peer evaluation sheets (with your name on them!) will be collected in class or can be put in **my mailbox** right after class (**no later than 5:15 pm of the same day**). If any of your evaluation sheets is missing, this will create a bias and may reduce your grade for class participation. Anonymized copies of the feedback provided on those sheets will be forwarded to the presenters or discussants by the course instructor.

Peer evaluation is important! It should be fair and consider both strengths and potential for improvement! Do not always give the highest ratings, but be critical and use the entire scale (consistently, also in comparison to other presentations/discussions). [If everyone gave the highest scores to *all* smart phones, online reviews would be completely useless!] For the first presentations, you may not want to select extreme scores, so subsequent presentations can reach both higher and lower scores. Don’t worry, I will notice if the first presentations ultimately end up getting the highest or lowest evaluations (and will take that into account)! This exercise is an opportunity to practice ‘scientific objectivity’ and to avoid subjective biases.

Expectations for Student Participation

Students in this course are expected to ...

- attend all 13 classes;
- read all required articles, chapters, and other documents (other than those identified as optional) and view video recordings (if applicable) *prior to class*,
- actively contribute to discussions and other activities in class and in *myCourses* (class participation),
- check their emails and notifications in *myCourses* at least every 3 days
- Please contact the course instructor as early as possible if you cannot take part in certain course components (at least 1 day prior to class), and provide a justification.

Recordings of Sessions (by instructor)

Portions of the classes (both online in Zoom and in the classroom) *may* be recorded, which will

always be announced in advance. Usually, these recordings are limited to portions not requiring students involvement (e.g., lectures), and students can generally avoid being recorded (e.g., by turning off their camera and microphone in Zoom).

Cell phones + audio/video recordings (by students)

No audio or video recording of any kind is allowed in class without the explicit permission of the instructor. MC2 devices are not to be used for voice communication without the explicit permission of the instructor.

Peer Evaluation of PRESENTERS (Presentation # 1)

1. Clarity:

"The presentation was very clear, contained all relevant information, and was easy to follow"

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

2. Organization:

"The presentation was very well prepared and focused and made good use of examples and illustrations; the different points were presented in a logical order."

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

3. Knowledge and Argumentation:

"The presenters really knew their study and its background well and brought up strong arguments"

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

4. Overall rating:

"This was an excellent presentation"

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

5. Two things I learned that I liked in particular or found interesting (re PRESENTERS):

- (a).....
.....
- (b).....
.....

6. Two things I'd like to suggest to the PRESENTING group:

- (a).....
.....
- (b).....
.....

7. Other comments (?)

.....
.....
.....

Peer Evaluation of DISCUSSANTS (Presentation # 1)

1. Clarity:

“The questions/critique were very clear, contained all relevant information, and was easy to follow”

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

3. Knowledge and Argumentation:

“The discussants really knew their study and background well and brought up strong arguments”

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

2. Organization:

“The discussion was very well prepared and focused and made good use of examples and illustrations; the different points were presented in a logical order.”

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

4. Overall rating:

“This was an excellent discussion/critique”

- I strongly disagree
- I disagree
- Neutral
- I agree
- I strongly agree

5. Two things I learned that I liked in particular or found interesting (re DISCUSSANTS):

- (a).....
.....
- (b).....
.....

6. Two things I'd like to suggest to the DISCUSSANTS group:

- (a).....
.....
- (b).....
.....

7. Other comments (?)

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