

PNB 2XF3

Perspectives in PNB (Research Methods)

Instructor: Dr. Sue Becker

Note: Dr. Becker does not hold office hours, but you can request a meeting by appointment. Usually, she will reply within 1 business day of receiving your email.

Teaching Assistants: Hanae Davis davishc@mcmaster.ca, Ruth Hofrichter hofricrm@mcmaster.ca, Lucas Greville grevillj@mcmaster.ca, Maria Ershova ershovm@mcmaster.ca, Robert Collins collinrn@mcmaster.ca, Kiran Matharu mathak3@mcmaster.ca

The aim of this course is to introduce you to the challenges, techniques, and insights of conducting research in Psychology, Neuroscience & Behaviour (PNB). We will survey the entire research process, emphasizing practical issues along the way. We will focus heavily on developing critical thinking and verbal presentation skills. You will also learn about research ethics, research funding, and dissemination of research to other scientists and the public. Emphasis will also be placed on how to extract good PNB research from the multitude of good and bad information we are exposed to every day. You should leave the course with improved scientific communication skills and a solid understanding of the research process along with an appreciation of the practical and theoretical issues.

Throughout the term, graduate students from across the department (some current, some former) will deliver guest lectures that tie in with various themes of psychology, neuroscience, and/or behaviour. The aim of these lectures is to provide the “story behind the story” to give you insights into the research process in action and expose you to current PNB research, as well as the fascinating places a PNB degree can take you.

Tutorials will i) help you to prepare for guest lectures via preview presentations in which your group will “warm up” the class for the guest lecture later that day, and ii) give you valuable practice at presenting and critiquing research papers to your peers.

Toward the end of the term, your group (different from your preview group in tutorials) will deliver a presentation to the entire class in which you will present a critical fact check of an assigned TED talk. The aim is to foster critical thinking and analysis.

Class Meetings

Lectures: Monday 3:30-4:PM, Tuesday 4.30-5.20PM, Thursday 3.30-4.20PM in ABB-102.

Tutorials: Thursdays 9:30-10:20.

T01:BSB-B138. T02:BSB-120. T03:BSB-B140. T04:BSB-B142. T05:BSB-B154. You must attend your assigned tutorial to earn full participation.

Assessment

In-class Quizzes	7%	Preview Presentation	20%
Tutorial participation	5%	Research Presentation 1	18%
Group work peer feedback	3%	TED Presentation	25%
Participation in group work	5%	PNB Science News Report	15%
		Draft news report peer feedback:	2%

Penalty for late submission of an assignment: Late assignments will be penalized 25% a day (weekends will count as one day). If you submit a McMaster Student Absence Form, please contact your tutorial TA directly.

Missed presentations: If you have to miss a presentation due to an emergency, please contact your TA (and cc your Professor, and your group members) as soon as possible so that we can make arrangements to re-schedule it.

In-class quizzes (7%) will happen at the start of Monday class and will use iclickers. Quizzes will be on the previous week’s lectures including the guest lecture and Dr. Becker’s lectures. Every student needs to purchase an iClicker and should bring it to each quiz date. iClickers can be purchased at the Campus Store and must be registered online with your name and a MacID (used to sign into AVE) to receive participation credit for your responses. Visit <http://www.bookstore.mcmaster.ca/textbooks/iclicker-faq.html> for more information.

Your final quiz mark will be calculated from all the quizzes that were held. Only your best 7 quiz marks will be counted. If you miss a quiz, you will receive 0 for that week, no exceptions, and no make-ups.

If you forget to bring an iClicker to class, you will not be able to provide your answers. Hard copy responses will not be accepted (sorry!).

Tutorial participation (5%): Your teaching assistant (TA) will expect active participation in tutorial to create a dynamic learning environment. If you have specific issues with this process you must speak with your TA as soon as possible. Your TA will assign you a grade out of 5 for tutorial participation throughout the term using the rubric below.

CONTRIBUTION TO TUTORIAL

Excellent (5)	Good (4)	Fair (3)	Poor (2)	None (0)

EVALUATING CONTRIBUTIONS

Excellent	Frequent & stimulating
Good	Frequent & valuable
Fair	Occasional & Forced
Poor	Infrequent & Irrelevant

Peer feedback of group work (3%). You will be completing two different group projects this term, the preview presentation and the TED presentation. For each of these two group projects, at the outset, you and your group members will complete a team contract, which can be downloaded here:

<https://www.cmu.edu/teaching/designteach/design/instructionalstrategies/groupprojects/tools/TeamContracts/TeamContract.docx>

At completion of each project, you will each (individually) submit your team’s contract together with your peer evaluation of each group member’s contribution to the project. Please evaluate your peers with direct reference to the work that you agreed upon for each member in your team contract. A Peer Evaluation Form for Group Work can be downloaded here:

<https://www.cmu.edu/teaching/designteach/design/instructionalstrategies/groupprojects/tools/PeerEvaluationForm/PeerEvaluationForm.docx>

[ects/tools/PeerEvaluations/PeerEval-GroupWork-formsample1.docx](#)

Deadline for submitting peer feedback for the preview presentation and team contract (worth 1%) is 1 day after your preview presentation, submitted in your tutorial DropBox via Avenue.

Deadline for submitting peer feedback for the TED presentation and team contract (worth 2%) is 1 day after your TED presentation, submitted in your tutorial DropBox via Avenue.

Participation in group work (5%). Your participation in each of the group projects will be based on the peer evaluations submitted by your team members, 2% for the research presentation and 3% for the TED presentation.

PNB Science News Report (15%) is a maximum 1 page science news piece describing the findings of a PNB faculty member based on a paper they published in a scientific journal in 2016 or 2017. The possible papers to choose from for each tutorial section will be provided on Avenue. For general guidelines on how to write a science news piece, please read the article “How to write a science news story based on a research paper” <https://www.theguardian.com/science/2014/mar/28/news-story-research-paper-welcome-trust-science-writing-prize>

Your one page news piece should provide a bit of background to the research. Optionally, you can interview one of the authors of the paper to get more background and insight.

You are encouraged to include a catchy graphic image, but make sure that the image is in the public domain (not copyrighted) and that you cite it appropriately. The space occupied by this image will be included in the 1-page limit, but after all, its worth 1000 words!

You do not need to get other scientists’ opinions on this piece although you may do so if you wish.

Your first draft (worth 2%) should be posted on your tutorial’s Avenue Discussion List for PNB Science News Reports. This is also where your class peers will provide you with feedback.

The format for the final submission is single spaced 12 point Times New Roman font with 1-inch margins all round. The final draft will be posted on a PNB Science News website that we will create for this course!

Deadline for posting first draft to your tutorial’s PNB Science News discussion group on Avenue: Monday November 27 by 5pm.

Deadline for submitting final draft: Friday December 8th by 5PM in your tutorial DropBox via Avenue.

Peer feedback on Draft of PNB Science News Reports (2%): You will provide peer feedback on 2 of your tutorial peer’s Draft Science News Reports. Please include only constructive, detailed, specific comments that will help the author to improve their news

piece. Please post your feedback in direct response to your peer's posting of their draft, to make it clear which of your peers' drafts you are responding to. To receive full marks, make sure you choose draft news reports that have not already received feedback from 2 or more peers. You are also highly encouraged to provide extra peer feedback to more than 2 of your peers (not for marks, just for good karma :-).

Deadline for posting peer evaluation of first drafts to your tutorial's PNB Science News discussion group on Avenue: Friday December 1.

Preview Presentation (20%) - See rubric below

One group (per tutorial) will be responsible for preparing remaining students for each upcoming guest lecture. Your 15-minute presentation will include:

1. Presenting a brief biography, research background, and interests of the guest speaker.
2. Presenting a synopsis of journal article readings assigned by the guest speaker.

It is also recommended that all students think about questions that could be asked to speakers on the day of their lectures.

Please refrain from contacting speakers to discuss their biographies

Individual Paper presentations (18% see rubric below)

You will give a short (7 min) presentation of a research paper of your choice (chosen from any topic within PNB, broadly defined). After your presentation, you will lead a 3-minute class discussion on the paper. In your presentation you must:

1. Provide a succinct overview of the study including why it was done and what was done, along with the main results and the authors' interpretation
2. Provide at least 1 reason why you think the paper was "cool" and highlight what the most important contribution of the paper is
3. Provide at least 3 limitations of the work and suggest ways it could be improved
4. Lead a 3-minute class discussion on the paper

The 3-minute discussion means that contributions can't be long winded. Participants should focus on making clear, concise contributions. Not everyone will be able to comment on every presentation, but there should be ample time for some contribution for each member of the group at some point in each tutorial session.

TED Fact Checking Presentations (25%, see rubric below)

Your larger group project is to scrutinize your assigned TED talk in detail. You should use everything you've learned about effective presentations and critical appraisal when you give your talk. Links to TED talks will be posted ahead of your session, so there is no need to play the whole TED talk in your presentation. You may, however, play parts of it to illustrate specific points. Your TED talk fact checking should include two essential components:

1. The main thesis of the talk and the specific claims made
2. A critical appraisal of both the thesis (is it important and worthy of dissemination to the public) and the specific claims made. For each of the claims you identify,

- you should research the relevant background literature with great care and attention to detail and relay to the class whether the claim made is justifiable in the light of the extant research and whether there are any inaccuracies
3. You should also identify whether the speaker has any biases or hidden or unhidden agendas and discuss whether these affected the information they presented, and how they presented it.

Notes on Group Work

Before you begin, think about how best to effectively complete course assignments that involve multiple people. Read the chapter on Effective group work in the course text. Have a discussion about strategies that have worked in the past and also about those that did not! Clearly communicate group expectations about: [1] method(s) of communication, [2] expected response time, [3] deadlines, and [4] what to do if a group member does not complete his/her assigned task(s). Complete a team contract: <https://www.cmu.edu/teaching/designteach/design/instructionalstrategies/groupprojects/tools/TeamContracts/TeamContract.docx> (this must be submitted together with your peer evaluation form for group work <https://www.cmu.edu/teaching/designteach/design/instructionalstrategies/groupprojects/tools/PeerEvaluations/PeerEval-GroupWork-formsample1.docx> one day after each group presentation).

Also think about possible tools your group could use to work efficiently and effectively. Some examples of online (free) resources are provided below.

1. Google Drive: <https://www.google.com/drive/>
2. Doodle: <http://doodle.com/?home>
3. Slack: <https://slack.com/>

All electronic copies should be submitted before 5 PM on the due date to your tutorial DROPBOX via AVENUE.

In this course we will be using a web-based service (Turnitin.com) to reveal plagiarism. Students will be expected to submit their work electronically to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to: <http://www.mcmaster.ca/academicintegrity>

Students are encouraged to visit the Centre for Student Development to improve their writing skills (MUSC B107 at x:24711). For information about the Writing Clinic and the Centre's other services, visit the Centre's website: <http://studentsuccess.mcmaster.ca/academic-skills/writing-support-services.html>

Please read the NEW MSAF policy here:

http://academiccalendars.romcmaster.ca/content.php?catoid=13&navoid=2208#Requests_for_Relief_for_Missed_Academic_Term_Work

Preview Presentation Rubric

Group Members					Date:	
Preview Title:					Score:	/48
Missing	Inadequate	Needs improvement	Meets expectations	Exceeds expectations		
0	1	2	3	4		
Presentation Slides		Score	Comments			
Slides are well designed, do not tax perception, attention or memory of audience members						
Images used are relevant and engaging						
Slides and speakers are complementary and do not compete with one another						
Structure and Content		Score	Comments			
Presents biography of guest speaker						
Identifies rationale of assigned papers						
Demonstrates understanding of research hypothesis						
Conveys methodological approach and how this helps to address research question						
Describes main results and they support the hypothesis						
Draws audience to a clear conclusion of research findings						
Discussion Facilitation		Score	Comments			
Prepared good questions and provided good direction						
Created discussion equally across all group members						
Individual Speaking Style		Score	Comments			
Group member 1 – speaker was						

clear and easy to follow		
Group member 2 – speaker was clear and easy to follow		
Group member 3 – speaker was clear and easy to follow		

Individual Research Paper Presentation: Rubric

Group Member					Date:	
Presentation Title/paper reference they were presenting:					Score:	/44
Missing	Inadequate	Needs improvement	Meets expectations	Exceeds expectations		
0	1	2	3	4		
Presentation Slides		Score	Comments			
Slides are well designed, do not tax perception, attention or memory of audience members						
Images used are relevant and engaging						
Slides and speakers are complementary and do not compete with one another						
Structure and Content		Score	Comments			
Sets context of paper						
Describes central question addressed						
Describes method/experimental design employed						
Relays main results and author interpretations						
Provides 1 valid reason to like the paper and a clear statement of what the paper contributes						
Provides at least 3 limitations and suggestions for improvement						
Discussion Facilitation		Score	Comments			

Facilitates Discussion		
Prepared questions provide a solid foundation for discussion facilitation		
Individual Speaking Style	Score	Comments
Speaker was clear and easy to follow		

TED Talk Fact Checking Presentation Rubric

Group Members					Date:	
TED talk being critiqued:					Score:	/36
Missing	Inadequate	Needs improvement	Meets expectations	Exceeds expectations		
0	1	2	3	4		
Presentation Slides		Score	Comments			
Slides are well designed, do not tax perception, attention or memory of audience members						
Images used are relevant and engaging						
Slides and speakers are complementary and do not compete with one another						
Structure and Content		Score	Comments			
Clear synopsis of the TED talk given						
Clear presentation of the claims made in the TED talk						
Clear statement about whether TED speaker likely had biases/conflict of interests and what they were						
Clear statements about research that was done to fact check and what the findings of this fact checking were						
Clear summary and conclusion						
Logical flow and structure of presentation						

Tentative Schedule of Topics (subject to change/modification)

DATE	Activity
Tuesday, September 5, 2017	Welcome + Intro!
Thursday, September 7, 2017	Ayesha Khan Special Lecture - Effective communication in the Psychological Sciences
Monday, September 11, 2017	Skills for this course: Presentation skills overview
Tuesday, September 12, 2017	Hanae Davis: Skills for this course: Group work, group contracts, peer evaluations
Thursday September 14, 2017	Dr Becker away - no class
Monday, September 18, 2017	Hanae Davis: Skills for this course: How to read a scientific paper
Tuesday, September 19, 2017	The Research pipeline: Overview
Thursday, September 21, 2017	Guest lecture 1. Michelle Cadieux. Cross-modal perception.
Monday, September 25, 2017	Scientific Method: Overview
Tuesday, September 26, 2017	How science is funded in Canada
Thursday, September 28, 2017	Guest lecture 2: Aneesh Bose. Parenting and environmental adaptations in fish
Monday, October 2, 2017	Ethics in PNB research
Tuesday, October 3, 2017	Unpacking the pipeline 1: From questions to experiments
Thursday, October 5, 2017	Guest lecture 3: Graeme Moffat
Monday, October 9, 2017	BREAK
Tuesday, October 10, 2017	BREAK

Thursday, October 12, 2017	BREAK
Monday, October 16, 2017	Unpacking the pipeline 2: You've collected some data; now what?
Tuesday, October 17, 2017	Unpacking the pipeline 3: Disseminating your findings to scientists
Thursday, October 19, 2017	Guest lecture 4: Brandon Aubie
Monday, October 23, 2017	Unpacking the pipeline 4: Disseminating your findings to society
Tuesday October 24, 2017	Scientific dissemination in the age of social media
Thursday, October 26, 2017	Guest lecture 5: Carling Baxter. <i>Aggression under different contexts: using fruit flies as a model for complex behaviours</i>
Monday, October 30, 2017	Science journalism: Special Guest Lecture by Steve Buist, investigative reporter for the Hamilton Spectator
Tuesday, October 31, 2017	Critically evaluating PNB science in the media
Thursday, November 2, 2017	Guest lecture 6: Matthew Berry
Monday, November 6, 2017	Traps in research: biases, dichotomies and ambition and temptation: the fall of famous scientists
Tuesday, November 7, 2017	The importance of replication and the current replication crisis
Thursday, November 9, 2017	Guest lecture 7: Malcolm Pilgrim
Monday, November 13, 2017	Critical communication 1: TED TALK FACT CHECK PRES
Tuesday, November 14, 2017	Critical communication 2: TED TALK FACT CHECK PRES
Thursday, November 16, 2017	Guest lecture 8: Maria D'Angelo
Monday, November 20, 2017	Critical communication 3: TED TALK FACT CHECK PRES
Tuesday, November 21, 2017	Critical communication 4: TED TALK FACT CHECK PRES
Thursday, November 23, 2017	Guest Lecture 9. Laura Cirelli: Social effects of musical engagement in infancy.

Monday, November 27, 2017	Critical communication 5: TED TALK FACT CHECK PRES
Tuesday, November 28, 2017	Critical communication 6: TED TALK FACT CHECK PRES
Thursday, November 30, 2017	Guest Lecture 10: Ali Hashemi. Visual/face perception
Monday, December 4, 2017	TBA
Tuesday, December 5, 2017	REVIEW