

# The Science of Performance

PSYCH/MUSICCOG 3SP3

Fall 2018

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<b>Prerequisites:</b>	PNB 2XA3 or PSYCH 2E03 PSYCH/MUSICCOG 2MP3 is recommended but not required. Completion of a statistics course is highly recommended (ARTSSCI 2R03, HTHSCI 2A03, LINGUIST 2DD3, PNB 2XE3, PNB 3XE3, SOCSCI 2J03, STATS 2B03, 2D03).

## Course Description

This course explores empirical, methodological, and cultural aspects of the study of performance, with a principal focus on the performing arts (music, dance, and theatre). This includes the social contexts of performance as well as the mechanisms of motor production, motor learning, timing, interpersonal synchronization, improvisation, emotional expression, and audience response. Research methods available to study the science of performance in the McMaster LIVELab will be introduced.

## Course Objectives

By the end of the semester, you should (1) understand the nature of performance in the performing arts and beyond; (2) have a general understanding of the methods used to study performance and audience response; (3) understand the mechanisms of interpersonal coordination in performance; and (4) be familiar with basic mechanisms of motor learning.

## Readings

See the last page of this syllabus for the assigned articles.

## Avenue to Learn

This course uses Avenue to Learn to post the course outline, lecture slideshows, articles, and other materials.

Please do read the **Announcements that I post on Avenue**. They contain useful information.

## Course Evaluation

### **Quizzes**

Starting in Week 2, there will be a quiz during the first 10 minutes of each class session, covering the two assigned papers for that week (there is no quiz on the Week 1 paper, although it will be covered on the exams). The quizzes will consist of true/false questions, fill-in questions, or one-line writing questions. There will be 6 questions/quiz, 3 covering each paper.

Each quiz will count 1.5% toward the final grade, for a total of 15%. The final grading will be adjusted such that the lowest quiz score of the 10 quizzes will be dropped. This should also cover a missed class due to illness or travel.

### **Participation in Class Discussions**

This course is being taught not as a standard lecture class but instead as something similar to a graduate seminar in which discussion is the principal means of learning the material. Hence, you will be required both to attend the classes and to actively participate in the class discussions.

You are required to make at least one substantive comment per class session (hopefully more) in order to earn the 1.0% participation score per class session, for a total of 10% of the final grade. As with the quizzes, only 10 out of the 11 classes will count towards the semester's participation score.

### **Exams**

There will be two **exams**. *Exam 2 will constitute one part of the final exam*. In addition, there will be a separate **comprehensive final exam** that will constitute the second part of the final exam and that will cover material from the entire course. The exams will consist of true-false questions, fill-in questions, and short-answer questions. The comprehensive final will consist of fill-in questions only.

Exams will cover the assigned readings. In addition to concepts, you will be tested on *graphical* material, such as figures resembling those from the assigned readings.

### ***Review article***

You will be asked to write a 4-5-page (double-spaced) review article on a topic from the course. The paper will count for 15% of the final grade. It will be due on Monday November 26 at the start of class. The paper should be based on one of the assigned *empirical* articles (not a review or theory article) and should include a discussion of **5 additional references** (research articles or book chapters) beyond the selected article. The paper should be about *the general topic* and not be a critique of the selected paper. The paper should take the form of a small review article (what's referred to in the literature as a "mini-review"). Please submit this BOTH as a hard copy to the TA and as a .doc file to the instructor. Two sample articles are posted on Avenue.

NOTE: Citations and references should be written according to American Psychological Association (APA) style. Be meticulous when creating your reference list. If you are not familiar with how to create citations or references, please consult the course TA's.

### ***Contribution of the Assessments to the Final Grade***

Quizzes	15% of the grade
Participation	10% of the grade
2 exams (each one 20% of the grade)	40% of the grade
Comprehensive final	20% of the grade
Review article	15% of the grade

### ***An Important Note about Missing the Midterm (Exam 1)***

If you are too sick to write the midterm, you are required to inform the instructor of this by email or phone, preferably *before* the midterm but no more than 48 hours after the midterm. In addition, you must schedule a time with the TA to take a make-up midterm no more than one week after the midterm date. **Please understand that submitting an MSAF note does NOT exempt you from writing the midterm.** Failure to take the midterm by one week after the midterm date will result in a **total loss of credit for the exam**, unless you have certification from a doctor that you have a chronic condition and are unable to write the exam at that time.

### **McMaster University Grading Scale**

A+ 90-100; A 85-89; A- 80-84; B+77-79; B 73-76; B- 70-72; C+ 67-69; C 63-66; C- 60-62; D+ 57-59; D 53-56; D- 50-52; F 0-49

### **Academic Integrity**

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. The academic credentials you earn are rooted in principles of honesty and academic

integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g., the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

### **A Note from the University**

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

## Weekly Lecture Topic and Reading Schedule

Date	Topic	Articles
September 10	(1) The nature of performance	<a href="#">Brown (2018)</a>
September 17	(2) The evolution of performance	<a href="#">Liénard (2006)</a> <a href="#">Watson-Jones (2016)</a> LIVELab tour
September 24	(3) Role playing in performance	<a href="#">Brown (2017)</a> <a href="#">Konijn (2000)</a>
October 1	(4) Audience processes	<a href="#">Thompson (2006)</a> <a href="#">Stevens (2009)</a>
October 8	<b>(5) Reading Week</b>	
October 15	(6) Physiological synchrony	<a href="#">Konvalinka (2011)</a> <a href="#">Lindenberger (2009)</a>
October 22	<b>(7) MIDTERM 1 covering Weeks 1-4 &amp; 6</b>	
October 29	(8) Interaction and coordination I: Music	<a href="#">Keller (2014) review</a> <a href="#">Goebel (2009)</a>
November 5	(9) Interaction and coordination II: Movement	<a href="#">Luck (2009)</a> <a href="#">Chauvigné (unpublished)</a>
November 12	(10) Expression in performance	<a href="#">Eerola (2013)</a> <a href="#">Van Dyck (2013)</a>

November 19	(11) Improvisation	Goldman (2013) Norgaard (2014)
November 26	(12) Talent and performance skill	Ackermann (2014) review Macnamara (2014)
December 3	(13) Motor learning	Wulf (2008) review Tempel (2015)
December ?	MIDTERM 2 covering Weeks 8-13 COMPREHENSIVE FINAL covering whole course	

## References for Articles (all are posted on Avenue)

### Week 1: The nature of performance

Brown, S., & Dissanayake, E. (2018). The synthesis of the arts: From ceremonial ritual to “total work of art”. *Frontiers in Sociology*, 3, 9. [pp. 1-5 covered during Week 1; pp. 6-11 during Week 2]

### Week 2: The evolution of performance

Liénard, P., & Boyer, P. (2006). Whence collective rituals? A cultural selection model of ritualized behavior. *American Anthropologist*, 108, 814–827.

Watson-Jones, R. E., & Legare, C. H. (2016). The social functions of group rituals. *Current Directions in Psychological Science*, 25, 42-46.

### Week 3: Role playing in performance

Brown, S. (2017). Proto-acting as a new concept: Personal mimicry and the origins of role playing. *Humanities*, 6, 43.

Konijn, E. A. (2000). *Acting emotions*. Amsterdam: Amsterdam University Press. **READING: pp. 21-24, 36-41, and 51-53.**

### Week 4: Audience processes

Thompson, S. (2006). Audience responses to a live orchestral concert. *Musicae Scientiae*, 10, 215-244.

Stevens, C. J., Schubert, E., Morris, R. H., Frear, M., Chen, J., Healey, S., Schoknecht, C., & Hansen, S. (2009). Cognition and the temporal arts: Investigating audience response to dance using PDAs that record continuous data during live performance. *International Journal of Human-Computer Studies*, 67, 800-813.

### Week 6: Physiological synchrony

Konvalinka, I., Xygalatas, D., Bulbulia, J., Schjødt, U., Jegindø, E. M., Wallot, S., Van Orden, G., & Roepstorff, A. (2011). Synchronized arousal between performers and related spectators in a fire-walking ritual. *Proceedings of the National Academy of Sciences*, 108(20), 8514-8519.

Lindenberger, U., Li, S.-C., Gruber, W., & Muller, V., (2009). Brains swinging in concert: Cortical phase synchronization while playing guitar. *BMC Neuroscience*, 10, 22.

### **Week 8: Interaction and coordination I: Music**

Keller, P. E., Novembre, G., & Hove, M. J. (2014). Rhythm in joint action: psychological and neurophysiological mechanisms for real-time interpersonal coordination. *Philosophical Transactions of the Royal Society B*, 369, 20130394.

Goebel, W., & Palmer, C. (2009). Synchronization of timing and motion among performing musicians. *Music Perception*, 26(5), 427-438.

### **Week 9: Interaction and coordination II: Movement**

Luck, G., & Toiviainen, P. (2009). Ensemble musicians' synchronization with conductors' gestures: An automated feature-extraction analysis. *Music Perception*, 24, 189-200.

Chauvigné, L., Walton, A., Richardson, M., & Brown, S. (unpublished). Group synchrony and multisensory integration in folk dancing.

### **Week 10: Expression in performance**

Eerola, T., Friberg, A., & Bresin, R. (2013). Emotional expression in music: Contribution, linearity, and additivity of primary musical cues. *Frontiers in Psychology*, 4, 487.

Van Dyck, E., Maes, P.-J., Hargreaves, J., Lesaffre, M., & Leman, M. (2013). Expressing induced emotions through free dance movement. *Journal of Nonverbal Behavior*, 37, 175-190.

### **Week 11: Improvisation**

Goldman, A. (2013). Towards a cognitive-scientific research program for improvisation: Theory and an experiment. *Psychomusicology*, 23(4), 210-221.

Norgaard, M. (2014). How jazz musicians improvise: The central role of auditory and motor patterns. *Music Perception*, 31(3), 271-287.

### **Week 12: Talent and performance skill**

Ackermann, P. L. (2014). Nonsense, common sense, and science of expert performance: Talent and individual differences. *Intelligence*, 45, 6-17.

Macnamara, B. N., Hambrick, D. Z., & Oswald, F. L. (2014). Deliberate practice and performance in music, games, sports, education, and professions: A meta-analysis. *Psychological Science*, 25, 1608-1618.

### **Week 13: Motor learning**

Wulf, G., & Mornell, A. (2008). Insights about practice from the perspective of motor learning: A review. *Music Performance Research*, 2, 1-25. **READING: pp. 1-15.**

Tempel, T., Loran, I., & Frings, C. (2015). Dancing your moves away: How memory retrieval shapes complex motor action. *Journal of Experimental Psychology: Applied*, 21, 300-312.