

*"The mind is a fire to be kindled, not a vessel to be filled."  
— Plutarch*

# MUS\_THY 335-0-21

## Special Topics: Music Perception

Northwestern University—Winter, 2004  
TTh 11:30 to 12:50 a.m., MAB 125

**Dr. Scott D. Lipscomb, Associate Professor**

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### COURSE SYLLABUS

#### **Course description:**

A study of the physiological, sensory, and organizational processes involved in the perception of musical sound. Topics to be covered will include basic musical acoustics, physiology of the hearing mechanism, transformation into mental representation, sound localization, and auditory stream segregation. In addition, significant attention will be devoted to a study of the primary aspects of the musical experience (pitch, duration, timbre, and loudness) and the mental synthesis of these elements that results in a meaningful musical sound, (usually) involving melody, rhythm, harmony, texture, and musical form.

#### **Incoming competency of students expected by instructor:**

Students are expected to arrive with varying levels of musical training and/or familiarity with the field of cognitive science. Therefore, vocabulary and other necessary keys to understanding will be built from the ground up, so all participants are able to communicate intellectually about the subject matter.

#### **Statement of Course Objectives:**

This course will provide the student an opportunity to ...

- ✓ develop a vocabulary for intellectual discussion about music perception
- ✓ develop a systematic method of thinking about music perception
- ✓ improve understanding regarding the listener's perspective when experiencing musical sound and the aesthetics involved
- ✓ learn about the sensory mechanisms, perceptual processes, and cognitive organization required in order for an audience to be moved by an aesthetic auditory experience
- ✓ become familiar with a basic core of experimental research – including – into the perceptual processing of musical sounds and to discover research directly related to a specific student-selected topic of primary interest
- ✓ identify important contemporary issues, empirical methods, and primary literature in the field
- ✓ learn to read and understand articles about music perception, written from the cognitive scientific frame of reference
- ✓ know the primary journals and texts in which one is likely to find reliable materials relevant to the topic of music perception
- ✓ pursue a specific topic of interest within the field of music perception and build an annotated bibliography of related literature

**Required texts:**

**Course Reader:** students will be required to read & comprehend a series of book excerpts & articles on a variety of topics. These articles have been collected into a course reader that can be purchased at Quartet Copies. These readings form an essential part of the course content and are required of every student.

**Additional Requirements:**

- ✓ All students will be required to utilize the Blackboard Discussion Board for the submission of class assignments (see below). Point a web browser to <http://courses.northwestern.edu>, then click on "Login" and provide your NUNet UserName & Password.
- ✓ Every student enrolled in this class is required to participate as a volunteer in two music cognition research projects during the quarter (details will be provided, but each study will required approximately one hour).

**Schedule of Assignments (subject to change)<sup>1</sup>:**

**Week One – Perception (general)**

- 1/6 – Review Course Syllabus
- 1/8 – Goldstein (2002), ch. 1 and 10

**Week Two – Music Perception (overview)**

- 1/13 – Goldstein (2002), ch. 11-12  
Lipscomb & Hodges (1996)

**Pitch Perception & the Sound Environment**

- 1/15 – Handel (1989), ch. 2 & 3  
Pierce (1999)

**Week Three – Pitch Perception (cont.)**

- 1/20 – Plomp (2002), ch. 1  
Krumhansl (1990), ch. 1
- 1/22 – Krumhansl (1990), ch. 2

**Week Four – Intervals, Scales, & Tuning**

- 1/27 – Burns (1999)
- 1/29 – Mathews (1999a)

**Week Five – Timbre & Rhythm Perception**

- 2/3 – Mathews (1999b)  
Hajda, Kendall, & Carterette (1997)
- 2/5 – London (2002)

**Week Six – Music Cognition & Attention**

- 2/10 – Shepard (1999)  
Jones & Yee (1993)
- 2/12 – No Class

**Week Seven – The Auditory Scene**

2/17 – **Final Project Topic Selection and Initial Report on Literature Review**

- 2/19 – Bregman (1993)  
Deutsch (1999)

**Week Eight – Neuromusicology**

- 2/24 – Peretz (2001)
- 2/26 – Bharucha (1999)

**Week Nine – Relevance of Music Perception Research to Musical Contexts** (2 of the following articles will be assigned to each student)

- 3/2 & 3/4 – Dowling, Tillmann, & Ayers (2002)  
Lamont & Dibben (2001)  
Huron (2001)  
Husain, Thompson, & Schellenberg (2002)

**Week Ten**

- 3/9 & 3/11 – **Oral Presentation of Final Projects (order to be announced)**

**Finals Week**

- March 15<sup>th</sup> at noon – written version of Final Project due**

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<sup>1</sup> Any changes related to due dates for assignments will be communicated to students via the email address provided in Northwestern's "Ph" system. Students are responsible for ensuring this information is up-to-date.

**Grading:**

- 30% - posting reflections to Discussion Board & assignments
- 15% - attendance & class participation
- 15% - Midterm Project (leading to Final Project)
- 40% - Final Project

Course grades will be assigned according to the following scale:

>= 90	A
>= 80 and < 90	B
>= 70 and < 80	C
>= 60 and < 70	D
<60	F

**Readings:** For every reading assignment, each student is required to write a 2-paragraph “reflection” (500 word minimum) to be posted to an appropriate forum of the Blackboard Discussion List *prior to the Thursday* class meeting of the week referenced in the course schedule above. The posting must clearly communicate two things: a) a basic understanding of the content of the reading (paragraph 1) and b) the student’s individual response to – or thoughts about – that topic, relating to past personal experience and/or other topically related resources (paragraph 2). Evidence of the latter may come, at times, in the form of a question posed to the rest of the class. Students will be expected to respond to a minimum of *five* of these questions during the course of the semester. This virtual discussion is a graded component of the quarter total. All postings that are submitted complete and on time will receive a grade of 100%. Any posting submitted after the due date will automatically receive a maximum grade of 75%, depending on content and completeness. Incomplete submissions will receive a grade of 50% or less, depending on the amount completed. **[No submission** will receive credit if posted more than two class periods following its due date.]

**Final Project:** At the end of the quarter, each student will be required to complete an individual project (40% of course grade). A detailed description of the project requirements will be made available on Blackboard. In order to receive an “A” on the project, students must integrate knowledge gained from the readings, class & virtual discussions, multimedia demonstrations presented in class, and instructor presentations, applying this understanding to a topic of interest related to Music Perception.

**Attendance:** MANDATORY ... absences in excess of **2** will lower your final grade by 5 points for each additional absence.

**Scholastic Dishonesty:** the University expects every student to maintain a high standard of individual integrity for work done. Scholastic dishonesty is a serious offence which includes, but is not limited to, cheating on a test or other class work, plagiarism (the appropriation of another’s work and the unauthorized incorporation of that work in one’s own work), and collusion (the unauthorized collaboration with another person in preparing college work offered for credit). In cases of scholastic dishonesty, Dr. Lipscomb will initiate disciplinary proceedings against the student. Any student caught plagiarizing a written document will receive a grade of “0” *and* disciplinary proceedings will be initiated. It’s not worth the risk—don’t do it!

**Pagers & cell phones are disruptive to this class.  
ALWAYS turn them off when entering the classroom.**

## **Reading List (contained in Course Reader)**

### **Book Excerpts & Articles Referenced as Reading Assignments**

- Bharucha, J.J. (1999). Neural Nets, Temporal Composites, and Tonality, pp. 413-440. In D. Deutsch (Ed.), *The Psychology of Music*, 2<sup>nd</sup> edition. San Diego, CA: Academic Press.
- Bregman, A. (1993). Auditory scene analysis: Hearing in complex environments. In S. McAdams & E. Bigand's (Eds.), *Thinking in Sound: The Cognitive Psychology of Human Audition*, pp. 10-36. New York: Clarendon Press.
- Burns, E.M. (1999). Intervals, scales, and tuning, pp. 215-264. In D. Deutsch (Ed.), *The Psychology of Music*, 2<sup>nd</sup> edition. San Diego, CA: Academic Press.
- Deutsch, D. (1999). Grouping mechanisms in music, pp. 299-348. In D. Deutsch (Ed.), *The Psychology of Music*, 2<sup>nd</sup> edition. San Diego, CA: Academic Press.
- Dowling, W.J., Tillmann, B., & Ayers, D.F. (2002). Memory and the experience of hearing music. *Music Perception*, 19(2), 249-276.
- Goldstein, E.B. (2002). *Sensation and Perception*, 6<sup>th</sup> edition. Pacific Grove, CA: Wadsworth Group.  
Chapter 1 – Introduction to Perception, pp. 1-33  
Chapter 10 – Sound, the Auditory System, and Pitch Perception, pp. 331-374  
Chapter 11 – Auditory Localization, Sound Quality, and the Auditory Scene, pp. 375-407  
Chapter 12 – Speech Perception, pp. 409-434
- Hajda, J., Kendall, R.A., & Carterette, E.C. (1997). Methodological issues in timbre research. In I. Deliège & J. Sloboda's (Eds.), *Perception and Cognition of Music*, pp. 253-306. East Sussex, UK: Psychology Press Ltd.
- Handel, S. (1989). *Listening: An Introduction to the Perception of Auditory Events*. Cambridge, MA: MIT Press.  
Chapter 2 – The Production of Sound  
Chapter 3 – The Environment of Sound
- Huron, D. (2001). Tone and voice: A derivation of the rules of voice-leading from perceptual principles. *Music Perception*, 19(1), 1-64.
- Husain, G., Thompson, W.F., & Schellenberg, E.G. (2002). Effects of musical tempo and mode on arousal, mood, and spatial abilities. *Music Perception*, 20(2), 151-171.
- Jones, M.R. & Yee, W. (1993). Attending to auditory events: The role of temporal organization. In S. McAdams & E. Bigand's (Eds.), *Thinking in Sound: The Cognitive Psychology of Human Audition*, pp. 69-112. New York: Clarendon Press.
- Krumhansl, C. (1990). *Cognitive foundations of musical pitch*. New York: Oxford University Press.  
Chapter 1 – Objectives and methods  
Chapter 2 – Quantifying tonal hierarchies and key distances
- Lamont, A. & Dibben, N. (2001). Motivic structure and the perception of similarity. *Music Perception*, 18(3), 245-274.
- Lipscomb, S.D. & Hodges, D.A. (1996). Hearing and music perception. In D. Hodges' (Ed.), *Handbook of Music Psychology*, 2<sup>nd</sup> edition, pp. 83-132. San Antonio, TX: IMR Press.
- London, J. (2002). Cognitive constraints on metric systems: Some observations and hypotheses. *Music Perception*, 19(4), 529-550.
- Mathews, M. (1999a). What is loudness? In P. Cook's (Ed.), *Music, Cognition, and Computerized Sound*, pp. 71-78. Cambridge, MA: MIT Press.
- Mathews, M. (1999b). Introduction to timbre. In P. Cook's (Ed.), *Music, Cognition, and Computerized Sound*, pp. 79-87. Cambridge, MA: MIT Press.

- Peretz, I. (2001). Listen to the brain: A biological perspective on musical emotions. In P. Juslin & J. Sloboda's (Eds.), *Music and Emotions: Theory and Research*, pp. 105-134. Oxford, UK: Clarendon Press.
- Pierce, J. (1999). Introduction to pitch perception. In P. Cook's (Ed.), *Music, Cognition, and Computerized Sound*, pp. 57-70. Cambridge, MA: MIT Press.
- Plomp, R. (2002). *The intelligent ear: On the nature of sound perception*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.  
Chapter 1 – Introduction
- Shepard, R. (1999). Cognitive psychology and music. In P. Cook's (Ed.), *Music, Cognition, and Computerized Sound*, pp. 21-35. Cambridge, MA: MIT Press.

**Music Education Students:**

**Music Content-Area Standards met:** 4B, 4C, 4D, 4F, 5J (partial), and 5Z (partial)

**Illinois Professional Teaching Standards met:** 1C, 1H, 2B, 2C, 2F, 4O, 6A, and 6D