# MUSIC COGNITION (MUS 5939-03)

## Schedule and Assignments

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<tr>
<th>W</th>
<th>1/6</th>
<th>Introduction; perception vs. cognition</th>
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| F  | 1/8 | Experimental vs. correlational method  
For discussion: Suppose you wanted to test Eriksson’s essential hypothesis using music theorists as subjects. How might you revise this experiment? |
| M  | 1/11| Basis of voice leading  
| W  | 1/13| Experimental design  
| F  | 1/15| Experimental design, continued  
| M  | 1/18| *Martin Luther King Day* |
| W  | 1/20| Absolute pitch among trained musicians  
For discussion: Be prepared to summarize both the design and the results of the experiment(s) in your assigned article.  
To turn in (by e-mail): Using any applicable technical vocabulary, identify the variables in the experiment that your article presents and also name the basic design of the experiment. (If your article includes two experiments, write up only the second one.) Be sure to indicate the types of any variables and also indicate how variables were controlled. |
| F  | 1/22| Complex experimental design  
| M  | 1/25| Latent absolute pitch  
Schellenberg, E. Glenn and Sandra E. Trehub. “Good Pitch Memory is Widespread,” *Psychological Science* 14/3 (2003), 262-266.  
For discussion: Be prepared to discuss Levitin’s article and also to summarize a second assigned article.  
Schellenberg/Trehub — SE, JH, AS; Smith/Schmuckler — LJ, JM, JT  
To turn in (by e-mail): Using technical vocabulary, what sort of a study does Levitin present? Again using technical vocabulary, what sort of a study is presented in your second assigned article? (Please specify the design and any relevant variables.) Using plain English, in what ways does your assigned article build upon or clarify Levitin’s results? |
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Topic</th>
<th>Reading Material</th>
<th>Discussion Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 1/29</td>
<td>Genetics and absolute pitch</td>
<td>Zatorre, Robert J. “Absolute Pitch: A Model for Understanding the Influence of Genes and Development on Neural and Cognitive Function,” <em>Nature Neuroscience</em> 6/7 (2003), 692-695. &lt;br&gt; Gregersen, Peter K., Elena Kowalsky, Nina Kohn, and Elizabeth West Marvin. “Absolute Pitch: Prevalence, Ethnic Variation, and Estimation of the Genetic Component,” <em>American Journal of Human Genetics</em> 65 (1999), 911–913. &lt;br&gt; Levitin, Daniel J. and Susan E. Rogers. “Absolute Pitch: Perception, Coding, and Controversies,” <em>Trends in Cognitive Sciences</em> 9/1 (2005), 26-33.</td>
<td>For discussion: Come with at least one interesting question about the possible origins of absolute pitch and/or a complicating factor that these authors didn’t mention. &lt;br&gt;To turn in (by e-mail): What makes some people suspect that AP might be genetic, or at least have a genetic component? What’s the difference between these two notions? Why is it so difficult to determine whether genetics play a role? (If you think of issues that weren’t raised in these articles, you are encouraged to bring them up as well.)</td>
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<td>W 2/3</td>
<td>Hypothetical experiment day: come to class with at least one question relating to absolute pitch (or pitch memory) that you would like to answer.</td>
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<td>F 2/5</td>
<td>Key finding: the tonal hierarchy theory</td>
<td>Krumhansl, Carol L. and Roger N. Shepard. “Quantification of the Hierarchy of Tonal Functions within the Diatonic Context,” <em>Journal of Experimental Psychology: Human Perception and Performance</em> 5 (1979), 579-594.</td>
<td>For discussion: Focus primarily on Experiment #1; feel free just to skim the introduction. &lt;br&gt;To turn in (by e-mail): Very briefly, what is the design of Experiment #1? Informally, describe the results shown in Figures 3, 4, and 5. For instance, how were these groups formed, how do their responses differ, and what do you think this means?</td>
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<td>M 2/8</td>
<td>Key finding: the intervallic rivalry theory</td>
<td>Brown, Helen, David Butler, and Mari Riess Jones. “Musical and Temporal Influences on Key Discovery,” <em>Music Perception</em> 11/4 (1994), 371-407.</td>
<td>For discussion: Be prepared to discuss both experiments, including the research hypotheses, the design (etc.), and the results. &lt;br&gt;To turn in (by e-mail): As succinctly as possible, what’s the gist of the intervallic rivalry theory and how does it differ from the tonal hierarchy theory? Which aspects of either theory do you find particularly appealing (or unappealing)?</td>
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| W 2/10 | Auditory learning  
| F 2/12 | Musical grammar and prediction  
For discussion: Be prepared to summarize one of Saffran et al’s experiments.  
#1 — LJ, JM  
#2 — AS, JH  
#3 — SE, JT  
To turn in (by e-mail): What do Saffran et al mean by “word,” “non-word,” and “part word”? Why did use two “languages”? What does this have to do with real music? |
| M 2/15 | Absolute pitch, relative pitch, and auditory learning  
For discussion: Be prepared to summarize one of Saffran et al’s experiments.  
#1 — AS, JH  
#2 — SE, JT  
#3 — LJ, JM |
| W 2/17 | Tonality as statistical learning  
To turn in (by e-mail): What do the phenomena explained in Chapter 8 and previously (most notably exposure effect, misattribution, and ITPRA components) have to do with our experience of tonality? |
| F 2/19 | Schema  
For discussion: List some aspects of music that could be meaningfully discussed in terms of schema theory. You may be as broad or as specific as you like, but try to come up with a substantial list (preferably including at least a few distinct categories). Then go through your list and decide which items seem especially well suited to be discussed as schemata. |
| M 2/22 | Twelve-bar blues schema  
Notice that figures appear at the end of the dissertation, not within the chapters. |
| W 2/24 | Schemata originating from music theorists  
For discussion: As we all know, a theory must be testable. How might Meyer’s theory be investigated experimentally? |
| F 2/26 | Hypothetical experiment day: come to class with a list of at least five musical stylistic features that you believe would be known (at least implicitly) to experts in some style but would likely escape the notice of non-experts.  
To turn in (by e-mail): Please send me your list. |
| M  | 2/29 | Various different but overlapping meanings of “schema”  
    |      | I’ll also be happy to answer questions about your upcoming midterm, of course. |
| W  | 3/2  | Auditory imagery  
    |      | For discussion (or, perhaps more accurately, for your own good):  
    |      | 1. Read only the “method” section and answer questions 2B-E from the practice midterm.  
    |      | 2. What exactly do Figures 2 and 4 convey? (You will need to look at the associated prose to pick up some information not represented graphically.) |
| F  | 3/4  | Midterm  
    |      | 3/7 - 3/11 *Spring Break* |
| M  | 3/14 | Memory and encoding  
| W  | 3/16 | Musical memory  
    |      | Lewis presents Halpern and Bartlett (2011)  
    |      | Jenn presents Schendel and Palmer (2007)  
    |      | Presentation: Using PowerPoint (or some equivalent visual presentation method)  
    |      | and speaking without a script (an outline is okay), present your assigned article to the class in 15 minutes (plus 5 more minutes for questions).  
    |      | To turn in (by e-mail): Using any applicable technical vocabulary, identify the variables in the experiment(s) that your article presents and also name the basic design of the experiment. Be sure to indicate the types of any variables and also describe how variables (these and others) were controlled.  
    |      | If you turn this in well before your presentation, I will provide prompt feedback. This is highly recommended for obvious reasons. |
| F  | 3/18 | Musical memory  
    |      | Andrew presents Williamon and Egner (2004)  
    |      | John presents Segalowitz, Cohen, Chan, and Prieur (2001) |
| M  | 3/21 | Musical memory  
    |      | Josh presents Finney and Palmer (2003)  
    |      | Sara presents Holleran, Jones, and Butler (1995) |
| W  | 3/23 | Hypothetical experiment day: consider some ways that we could test musical memory with a recall task (rather than recognition). Consider ways of presenting the music and/or activities/instructions that impact music processing, and how this might either improve or degrade memory.  
    |      | To turn in (by e-mail): Please send me at least two distinct ways to test musical recall (not recognition) that would be possible to quantify for the purposes of statistical analysis. Also propose at least two factors that you believe might affect performance in the task you describe, and indicate how these factors could work as independent variables.
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| 3/25 | Rhythm and meter  
Don’t overlook the videos for this article! You don’t have to read super carefully; mostly I want you to get a sense of what people are doing with motion capture technology. | |
| 3/28 | Metrical Perception  
To turn in (by e-mail): These articles are all very obviously related. What does each experiment contribute to the “big picture”? | |
| 3/30 | Rhythm and meter  
For discussion: Be prepared to summarize one of these articles.  
Davies et al — LJ, AS  
Fitch/Rosenfeld — JT, JH  
Hannon/Trehub — JM, SE  
To turn in (by e-mail): Using any applicable technical vocabulary, identify the variables in the experiment(s) that your article presents and also name the basic design of the experiment. Also, if you could ask the authors one question about their experiments, what would it be? (More than one question would be fine if others come to mind.) | |
| 4/1 | No class — MTSE | |
| 4/4 | No class | |
| 4/6 | Metaphor and embodiment  
Johnson, Mark L. and Steve Larson. “‘Something in the Way She Moves’ — Metaphors of Musical Motion,” *Metaphor and Symbol* 18/2 (2003), 63-84.  
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<td>4/13</td>
<td>W</td>
<td>Hypothetical experiment day</td>
<td>Hypothetical experiment day: Think of several very different things that that could be conveyed effectively by music. One should be a familiar real-life event or experience, one should be a mood (other than sadness), and one should be a metaphor (which could involve motion and/or spatial location, but avoid similarities to Eitan &amp; Granot or Eitan &amp; Timmers). How might we test whether and/or how music evokes these images and feelings? To turn in (by e-mail): Please send me your list and a brief description of how each might be studied empirically.</td>
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| W   | 4/20 | Shared neural resources for music and language  
| F   | 4/22 | Music and mathematics  
Make your own adventure: go online and see what you can find about the relationship of music and mathematics. I dare you. |
| Th  | 4/28 | **Final (3:00-5:00)** |