Music 227/228: Introduction to the Perception and Cognition of Music  
Carleton College, Spring 2021

Instructor: Justin London  
Office: WCC M208  
Phone: x4397; Hours Mon. 1:30-3:00 (PM)  
Tues. 8:30-10:00 (AM)

Course Materials  
All Materials, mp3 files, PDFs, etc., on the course Moodle page.

What is Music 227 about?  
There is a long and vibrant program of research in auditory perception and cognition which goes back to the 19th century, and good part of it involves music, either as a stimulus of choice and/or as the object of study. This research can tell us a good deal about how and why music (even music from very different times and/or places) sounds and affects us the way it does, as our ears and brains impose fundamental constraints on musical structure. For example, the choice of tones in the construction of a musical scale is limited by the ways we perceive and categorize pitches, as well as by the limits of our ability to discriminate between them, which is why there are strong similarities between the musical scales used in different cultures. This course is an introduction to this research, with an emphasis on the perception of musical pitch (melody and harmony), though we will also look at rhythm and cross-modal perception, musical timbre and ecological perception, deficits in music perception and cognition (which will serve as an introduction to musical neuroscience), and emotional responses to music.

Who is this class for?  
Music 227 is aimed at both music students with little or no background in psychology, as well as psychology or biology/neuroscience students with little or no formal training in music. The goal of the course is to introduce you to both disciplines and enable you to understand current research in music psychology.

What will we do in class?  
In this class we will work through the perception and cognition of the basic parameters of music: pitch, melody (successive pitches) timbre, rhythm, harmony (simultaneous pitches), and tonality. We will also look at issues of auditory memory, embodied cognition, enculturation and learning, musical abilities and disabilities, and music and its relation emotional expression and arousal. Our work in class will compliment our activities in the lab section of the course, and in some cases will supplement the lab lectures. See the syllabus for class-by-class details, and the attached reading list.

Course Assessment

- Two Midterm Exams (30% each): Weekend take-home exams given in the 4th and 7th weeks.  
- Final Exam (40%): Take-home exam, due at the end of the examination period.
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## SYLLABUS OF LECTURES AND CLASS ACTIVITIES

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<td>THIS CLASS INTENTIONALLY LEFT BLANK (catch-up; pre midterm questions, etc.)</td>
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<td>Loud Noises and Sweet Songs</td>
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**FINAL EXAMS Due 5:00 PM, Monday June 7th.**
Course Readings


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Lab Course (MUSC 228) Information

Course Materials
Additional Materials: mp3 files, Excel files, and PDFs on the course Moodle page.

What we will do in this Lab
The goal of this course is to learn how to design and run a musical experiment, and then be able analyze and interpret the data gathered through it. The core activity involves teams of 3-4 students, each team recreating a classic experiment in music perception and cognition with a twist: in each we will vary the stimuli or conditions slightly, and compare our results with the original research. In order to do this, we will:

- Explore the special issues involved with participants in musical experiments
- Learn about the design of psychophysical experiments in general and music perception experiments in particular, with an emphasis on the role of auditory memory
- Create stimuli for music experiments by learning how to compose/create useful musical stimuli
- Learn how to organize and manage experimental trials, participants, data collection, and other relevant logistics
- Analyze our data using appropriate descriptive and inferential statistics
- Present our experiment and its results in oral and written form.

Weekly activities are given on the syllabus on the opposite side of this page.

Organization of the Lab Teams
Research in music perception and cognition is inherently interdisciplinary—each member of a research group brings her or his particular strengths and backgrounds (a knowledge of acoustics, neuroscience, of music theory, of statistics, of experimental design, etc., etc.). Yet it is essential that all members of the group know enough of each other’s specialty so they can work together. We will do the same here, and to that end, you will be assigned both to a team and to a particular project, with the aims of (a) having complimentary backgrounds in each group, and (b) matching the particular strengths of a group to a given project. This will be done on the basis of the musical, stats, and psych background survey you filled out before the start of the term. Team assignments are non-negotiable.

Course Assessment
- Weekly Assignments, including individual and partner assignments 35%
- Experimental Project (group project) 25%
  - This includes literature review, preparation of stimuli, running experimental trials, data analysis, and a summary of results
- Experimental Participation (may be substituted by a paper) 15%
- Oral/Poster presentation of your Experiment (group project) 10%
- Individual write-up of your Experiment 15%

Lab assignments are due 48 hours after the completion of your lab section (so, Thursday afternoon at 5:00 for Tuesday Lab; Friday afternoon at 5:00 for Wednesday Lab). Oral Presentations will take place in M-W class at the end of the term. Individual write-ups of your experiment are due 5:00 pm, Monday, June 5th.