Implement your own independent research project in the area of Acoustics. This could involve a research question in physical acoustics or psychoacoustics. It could involve building a computer model of the acoustics of an instrument or a room. It might involve building a new instrument or renovating an existing room to improve the acoustics. (1) Whatever research project you choose (I encourage you to discuss possible topics with me after class or via email), you should have a research question(what are you going to study), a hypothesis about the question(how you think the system behaves/will behave), an experimental design(how you decided to study the question), and some analysis and conclusions of your findings (what did you find and why is it important). (2) Prepare a paper on the order of 5-10 pages describing the research you did. This should include an Introduction, Background (Literature Review - that is, what has been done before on this subject?), Method (What did you do?), and Conclusions (What did you find?). You will give a short talk (about 7 minutes depending on how many presentations we have) on the last day of class discussing your findings. (3) Finally you will need to make a demo video talking about your research project and the experiment you conducted. This should be about 5 minutes long, and should succinctly show what you did and why for someone who wants to know about your project in the future. You can upload the video directly to the course site or send me a link to a YouTube or similar video hosting site. It has been customary to treat sound classifications separately, i.e. 1) physical characteristics of sounds in the field of acoustics, 2) the perception of sounds in the field of psychoacoustics, 3) the cognitive and emotional variables of sounds in the field of semiotics, semantics and aesthetics. The attempt to merge these areas is today more than an interesting academic endeavor; it is a crucial scientific step in order to enhance human living conditions in sonically complex mega-cities.