Paper 2: Listening to the brain

Write a 700-850 word paper describing how the brain places sounds within a room. This paper should be split into three sections: 1) context of space, 2) auditory reception and perception, 3) and space modification.

In the first section of the paper, you must define the shape of the space (rectangular, square, round, etc). Include what the defined space is like and how the sound waves would interact in that space (Example: sound waves reverberating in a marble amphitheater or loudness in a wooden church nave). Be sure to include whether there are furnishings and if the space is one where groups of people gather. If you are including either of these in your spaces, provide general estimates (example: concert seating for 350).

The second section of the paper must include both auditory reception and perception. This is where the bulk of the word count will be. Describe how the brain identifies where it is in space. For auditory reception, describe the pathway a soundwave goes through to be processed by the brain. For perception, make general statements that are not specific to one person. Include auditory processing of sound once it is received (Translating the reception into perception).

Finally, apply this theoretical knowledge by explaining how you could modify your space to be more aurally soothing or irritating.

Be sure to use in-text citations and include a reference page. Use AMA style, follow the provided styleguide on eCampus—including the in-text numbering system.

The paper is due on 06/29 by 11:59 PM (Germany time zone) on eCampus in the appropriate dropbox. Late papers will be accepted up to 3 days late, with a 10% penalty on the assignment for each day late. After three days, late papers will not be accepted.

NOTE: You should not include sound equations or calculations. You should use the general concepts that we discuss in class.

NOTE: See the rubric for the paper is graded and how many bonus points each of the options are worth.

Bonus points for the following:

- Incorporate a discussion of a specific composer’s sound may be used to elicit an emotional response in a space.
- Compare and contrast your space with the same type of space that is open-air next to a street with traffic.

NOTE: The following resources are provided with specific chapters that are pertinent to your assignment. You are not required to use all of the resources provided here. Use these as needed. You may also find you need to explore chapters or find literature that are not listed here.
Acoustic Resources

Musical Acoustics: Chapter 15: Room Acoustics pp. 317-329. (located in the course reserves)

Physics and Music: The science of musical sound, Chapter 5: Sound Transmission, Chapter 10: Perception of Loudness, Pt V: Acoustical Architecture (located on the research guide) (located on the research guide)

Fundamentals of Musical Acoustics, Chapter 5: Sound Transmission, Chapter 10: Perception of Loudness, Pt V: Acoustical Architecture (located on the research guide)

Music, Physics, and Engineering, Chapter 8: Theater, studio, and room acoustics (located on the research guide)

Music Resources


What to listen for in Music, Chapter 13: Fundamental forms, the Sonata; Chapter 15: Opera and Music Drama (located on the research guide)

Neuroscience Resources (All located on the research guide)

A Student’s Guide to Cognitive Neuroscience, Chapter 10: The Hearing Brain (music perception section)

Fundamental Neuroscience by Larry Squire, Chapter 49: Language (for auditory perception pathways)

Clinical Neuroanatomy, section V: functional systems, Chapter 16: Auditory system and Chapter 19: Limbic system

Essentials of the Human Brain, Chapter 14: Hearing and Balance, Chapter 23: Drives and Emotions

Music and acoustics literature (use Google Scholar)