Course Overview

Music undeniably impacts our daily lives. The earliest known human instruments date back at least 40,000 years. No known culture exists that is without some form of music. Yet, how music impacts the brain is relatively unknown. Over the past two decades, there has been a major increase in the number of studies investigating how different aspects of music, such as pitch, melody, harmony, and rhythm influence and impact neuronal functioning. This course will provide an overview of our understanding of how music influences brain functioning, and vice versa. From here, we will explore new clinical uses for music in treating and influencing neuronal pathologies. Altogether, this course will provide a comprehensive understanding of this fascinating and evolving topic.

Evaluation Criteria

Paper Reviews (25%): The content of this course will primarily focus on discussion. The initial run of classes will consist of plenary lectures on various stimulation methods. Once these lectures are over, we will switch to a seminar style, in which we will review brain stimulation papers every week. Two papers will be assigned each week, available on Blackboard. You are required to read both papers, pick one, and write a review/critique of that paper on Blackboard. Reviews must be posted by 7pm on Sunday evening. These reviews will contribute to your grade for the course.

Paper Presentations (25%): Once the paper reviews begin, one of you will give a presentation each week on one of the papers* (two presentations per class). The presentation should take the form of a powerpoint lecture, in which you discuss the background of the paper, the methods, results, and conclusions, along with your commentary. You will be able to sign up for your two papers on the first day of class or any day thereafter. The format of the discussion will take the place of a journal club, and so all students are expected to participate in the discussion. In-class participation is part of your grade (10%).

*If you do not see any papers that are of interest to you, you are free to suggest an alternate paper if you have one in mind. You must speak with me to propose your alternate paper.

Proposal Paper (50%): There is no final exam for this course. Instead, you will be required to write a paper to be turned in by May 15th. The paper will take the form of an experiment proposal, in which you will propose to run an experiment, using any of the methods discussed in class. The topic of the paper is entirely up to you, but you will be required to write an introduction, methods, expected results, and brief discussion section, with a bibliography. The page limit is 10 pages (not including bibliography).
General Policy

Honor Code: George Mason University has an Honor Code, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. All violations of the Honor Code will be reported to the Honor Committee. See honorcode.gmu.edu for detailed information. Plagiarism is the unacknowledged use of another person's labor, another person's ideas, another person's words, or another person's assistance. Unless otherwise stated in class, all work done for courses -- papers, examinations, homework exercises, laboratory reports, oral presentations -- is expected to be the individual effort of the student presenting the work. Any assistance must be reported to the instructor. If the work has entailed consulting other resources -- journals, books, or other media -- these resources must be cited in a manner appropriate to the course. Everything used from other sources -- suggestions for organization of ideas, ideas themselves, or actual language -- must be cited. Failure to cite borrowed material constitutes plagiarism. Undocumented use of materials from the World Wide Web is plagiarism. If you are caught plagiarizing or cheating, you will be referred to the honor committee and, if found guilty, will fail the assignment, and, depending upon the severity of the violation, you may fail the class.

Disability Statement: If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Services (DRS) at 703-993-2474. All academic accommodations must be arranged through that office. Please see me as soon as possible about this, as I will not adjust grades for exams after they have been given.

Make-up policy: Make-up exams will only be given if exceptional circumstances are claimed AND substantiated. I must see proof of what you are claiming to verify that it is true.

Add/Drop Deadlines: Please note that the last day to add classes is January 29th. The last day to drop a course with no tuition penalty is also February 5th. The last day to drop with a TBD tuition penalty is February 12th. After February 12th, students may self-withdrawal from the class until February 25th.

Official Communications via GMU E-mail: Mason uses electronic mail to provide official information to students. Examples include communications from course instructors, notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their Mason e-mail account and are required to activate that account and check it regularly. If class has to be canceled, you will be informed via e-mail. Information will be provided in the e-mail about making up the missed class.

Technology: For this class, you will be asked to give presentations. This will require that you have access to a computer with some type of presentation software (PowerPoint, Keynote, etc.). If you do not have access to a laptop, one will be provided for you to give your presentation on.

Course Schedule:
<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture topics/Activities</th>
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<tbody>
<tr>
<td>1/28</td>
<td>Introduction to Course – Music and the Brain</td>
</tr>
<tr>
<td>2/4</td>
<td>Basic Neuroanatomy – what is a brain and how does music change it?</td>
</tr>
<tr>
<td>2/11</td>
<td>Basic Neurochemistry – how does a brain work, and what impact does music have on it?</td>
</tr>
<tr>
<td>2/18</td>
<td>Seminar Begins</td>
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<tr>
<td>3/25</td>
<td>NO CLASS</td>
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<tr>
<td>5/15</td>
<td>Papers Due</td>
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**Course Readings**

**Introduction to Course** (1/28)


**Basic Neuroanatomy – what is a brain and how does music change it?** (2/4)


**Basic Neurochemistry – how does a brain work, and how does music influence it?** (2/11)


**2/18 Readings – Music and Movement**


**2/25 Readings – Music and Reward**


### 3/4 Readings – Music and Language


### 3/11 Readings – The Nature of Music


### 3/18 Readings – Animals and Music


### 4/1 Readings – Music and Development


### 4/8 Readings – Musicians


### 4/15 Readings – Individual Differences in the Perception of Music


4/22 Readings – Music and Therapy


4/29 Readings – Music and Communication


5/6 Readings – Disorders of Music

