Issues with Music and Sciences

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Class Hours: Tuesday 16:00-18:00
Class Room: Zoom

Course Description

For undergraduate students at HU Berlin interested in music and the sciences, the course *Issues in Music and Sciences* will introduce students to the problems, solutions, and difficulties that arise when questions about music are investigated with scientific methods. The course consists of 16 seminars that survey topics ranging from the history of music and science, philosophy of science, the perception of music, social psychology of music, neuroscience of music, as well as investigating how the study of music and sciences are currently used in industry applications. After completing this course, students will be able to critically assess scientific inquiry as applied to music and be able to give practical examples that demonstrate their thinking. Students will also be shown what types of career paths are afforded in studying music and the sciences.

Required Materials

- All materials for the course *Issues in Music and Sciences* will be posted on the class Moodle
- Students will also be required to be able to use the Zoom platform for weekly lectures as well as be able to access the Google Documents with a web browser

University Information for HU Berlin Students

- Veranstaltungsart (Vorlesung, Seminar etc.): Seminar
- Termin: Di, 16-18 Uhr
- Raum: WWW (Seminar kann nur online angeboten werden)
- Studiengang und Modul
- BA Musikwissenschaft (Ordnung 2014): Module VI und VIIIb

Zoom

The link for the Zoom room will be posted on the Moodle for the class.

Course Objectives

By the end of the course, students will be able to ...

1. critically assess scientific thinking as applied to music
2. give practical examples that demonstrate their critical thinking
3. identify career opportunities that require knowledge of music and science
4. describe many of the common methods used in music and science research
5. describe the sub-specialties within research concerning music and science

Assessment

Written Assignment

At the end of the course, students will complete a final written assignment that demonstrates a understanding of the content covered in the course. Essays must be written in English and adhere to adhere to formatting according to the Publication Manual of the American Psychological Association: 6th or 7th Edition. The instructor will provide a detailed rubric of how the essay will be marked as well as template examples of how to structure the assignment.

Participation

While attendance will not be taken, the class will consist of both lectures and synchronous discussion via the Zoom chat and use of Google Docs. Participation is actively encouraged so students are make the most of their learning experience.

Workload Expectations

In order to facilitate group discussions in real-time, students will be asked to meet the minimum reading requirement each week. Many weeks this will take the form of reading journal articles from academic papers, but will also include YouTube videos, podcasts, blogs, as well as book chapters.

Given the constant stresses associated with academic work during the global COVID-19 pandemic, reasonable consideration will be given to any students that make the instructor aware of any extenuating circumstances that affect their ability to work through the materials. If you are experiencing undue stress that is affecting your general well being, *please let the instructor know sooner rather than later so that accommodations can be made.*

Online Course Policies

Before Class

The instructor expects that you log into the Zoom room five minutes before class begins so that any technical problems can be sorted before class begins. Typically lecturing will not begin until five minutes past the hour. The five minutes before and after will be reserved for answering questions from students and informal discussion.

During Class

The lecturing of class will always begin with the instructor checking that the class is read and asking students to respond in the Zoom chat. During class, **it is not** expected that your camera is on. Please keep your microphone set to **off** when not speaking as to minimize excess noise.

Breaks will be offered at least every 45 minutes so that students are able to attend to any personal needs that arise during the class.

During class we will also make use of Google Docs in order to take time to pause and reflect on questions that come up during the lecture. Please ensure you are able to access Google Docs with your web browser.

Accommodations for Disabilities

If you have a disability that may affect your ability to succedee this course, please let this be known to the instructor so that they might be able to best accomodate your needs.

Assistance

The instructor is available and interested in discussing any course materials with you in order to enhance your learning. Weekly office hours will be held every Friday afternoon and the instructor can be contacted via email. Please allow at least two work days to respond to all emails. The instructor does not regularly check emails outside of working hours.

Course Schedule

The following lists the tentative course plan for Winter 2020 and is subject to change. Each week we will meet for two hours (16:00–18:00 CET) over Zoom that will consist of lectures, discussions, and group activities. Near the end of the course, the final writing assessment will be introduced.

Tools for Scientific Thinking with Music

Week 01, 11/02 - 11/06: Why Science and Music? | What is Systematische Musikwissenschaft?

- Welcome to Online Learning
- Describe Scope of Course and Types of Questions We Will Explore
- Introduce Brief History of Music and Science

Week 02, 11/09 - 11/13: Philosophy of (Music) Science | Theories and Music

- Problem of Induction
- Theory in Science
- Theory in Music

Week 03, 11/16 - 11/20: Measuring Music | Ramifications of Reifying

- Falsifiablity and Operationalization
- Small World and Big World (What's a Scientific Model?)
- Validity and Reliability
- Measuring Sounds
- Measuring People

Week 04, 11/23 - 11/27: Eureka! I've Discovered C Major | Replicating a Finding

- The Scientific Method
- Claiming a Discovery
- Being Proved Wrong
- The Many Ways to Be Wrong (Confounding, Type I + II Errors)

Applications in Music and Science

Week 05, 11/30 - 12/04: Bleep Bloop | Music and Psychoacoustics

- Human Auditory System
- What Humans Can Hear
- Repetition and Music
- Pitfalls of Determinism (Reductionism, Atomism, Universalism)

Week 06, 12/07 - 12/11: On The Tip of My Tongue | Musical Memory and Expectation

- Musical Memory
- Expectation in Music

Week 07, 12/14 - 12/18: Scorpios Prefer UK Garage ($p<.05$) | Music and Identity

- Musical Identity
- Problems with Genre and Musical Features
- Links to Personality
- Everyday Listening

Week 08, 12/21 - 12/25: Music Makes Your Brain Light Up | Music and Neuroscience

- What can neuroscience tell us?
- How fMRI works
- One dataset, many theories
- Learning from lesions

Week 09, 12/28 - 01/01: Right in the Feelings | Music and Emotion

- Types of Musical Emotion
- Direct and Indirect Measurement

Week 10, 01/04 - 01/08: Loftier Claims | Music, Culture, and Evolution

- Music and pre-history
- Universality, Ethnocentricity, and Adaptationism
- Cross Species Work
- Questioning Definitions

Week 11, 01/11 - 01/15: I Died Not Knowing I Was a Violin Prodigy | Music and Learning

- Music and Cognitive Development
- Music and Cognitive Ability
- Music and Practice

Week 12, 01/18 - 01/22: Problems with Cash Rewards | Music and Industry

- Audio Branding
- Music and Advertising
- The Behavioral Economics of Music

Week 13, 01/25 - 01/29: Biases in Research | Music, Science, and Racism

- History of Racism in Science
- Racism in Musicology
- Eugenics, Statistics, and Measurement Errors

Week 14, 02/01 - 02/05: Problems with Cash Rewards | Music and Artificial Intelligence

- Google Doodle
- Shazam Algorithms
- WaveNet
- Reccomendation Systems