

HUMA 5951: Music, Science, and the Sublime

School of Humanities and Social Science, Division of Humanities
The Hong Kong University of Science and Technology, Spring 2026

Instructor: Ilari Kaila (kaila@ust.hk)
Lectures: Tuesdays, 10:00 AM to 1:00 PM
Location: Shaw Auditorium, rm. 103
Office hours: TBA / by appointment
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Course description

Throughout its history, music has overlapped with both scientific or proto-scientific inquiry and religious practice. From Pythagoras to Kepler, from the *quadrivium* to contemporary theories of consciousness, the organizing principles underlying music have been imbued with great significance, often as manifestations of, or metaphors for, fundamental natural laws.

In this class, we inspect the overlapping domains of music, mysticism, and the pursuit of knowledge in Western cultural history. What do the beliefs and theories of the past tell us about our relationship to music? What does music tell us about being human and of the world we inhabit? In an effort to answer these questions, we will be discussing topics ranging from psychoacoustics and fractals to celestial harmonies and birdsong, as well as listening to repertoire spanning from ancient Medieval compositions to tracks by contemporary computational artists.

While having a background in music can be helpful and will no doubt inform the student's relationship to the topics being discussed, no prior musical training is required.

Reading and listening

A partial bibliography is included at the end of this syllabus. You should expect to read between 30 to 50 pages in preparation for each lecture. We will also listen to relevant repertoire, both in class and as assigned along with your readings. Come to each lecture prepared to express your views, aesthetic reactions, and to ask and answer questions.

Writing and presenting

You will be required to write one term paper, 10–15 pages, in 12-point Times New Roman font, double spaced and with standard margins, which equals about 2500–4000 words. The essay will amount to 30% of your final grade.

By the fifth class session, you need to have chosen your paper topic and have it approved by me. Towards the end of the semester, each student will give a presentation of their findings so far. (In some circumstances, this may be substituted with a written preliminary abstract of your paper.) The presentation constitutes 20% of your final grade and is intended to guide your writing process. You should be prepared to answer questions, both from other students and me. You are encouraged to choose a topic that aligns with your own areas of expertise

and/or aesthetic preferences.

Additionally, there will be a few short precis-writing exercises: short summaries of some of the assigned readings, answers to specific questions on a broader topic, and the like. These will add up to 15% of your final grade.

Intended Learning Outcomes (ILOs)

On successful completion of the course, the student will be able to

- discuss the intellectual history of Western music as it relates to scientific inquiry and religious life;
- demonstrate an aesthetic and analytical sensitivity in listening to relevant repertoire informed by an understanding of its cultural context;
- analyze music through the application of basic concepts of psychoacoustics and music cognition;
- assess theories and philosophies pertaining to music, meaning, and reality, both critically as well as with sensitivity to their particular historical, social, and cultural contexts.

Grading

Term paper	30%
Presentation/abstract	20%
Precis assignments	20%
Participation	15%
Attendance	15%

Partial bibliography (tentative)

Carpenter, Nan. 1955. “Music in the Medieval Universities.” *Journal of Research in Music Education*. Vl. 3, No. 2, : 136–144.

Chapman, David. 2020. “The collapse of rational certainty.” *Meaningness*.

<https://meaningness.com/collapse-of-rational-certainty>

Doolittle, Emily et al. 2014. “Overtone-Based Pitch Selection in Hermit Thrush Song: Unexpected Convergence with Scale Construction in Human Music.” *PNAS* 111, no. 46: 16616–16621.

Doolittle, Emily & Brumm, Henrik. 2021. “O Canto do Uirapuru: Consonant Intervals and Patterns in the Song of the Musician Wren.” *Journal of Interdisciplinary Music Studies* 6, no. 1: 55–85.

Godwin, Joscelyn. 1987. *Harmonies of Heaven and Earth: The Spiritual Dimension of Music from Antiquity to the Avant-Garde*. London: Thames & Hudson. (Selections.)

Heilbron, J.L.; et al. 2003. “Preface.” *The Oxford Companion to the History of Modern*

Science. New York: Oxford University Press. pp. vii–x. ISBN 978-0-19-511229-0.

Hofstadter, Douglas. 1979. *Gödel, Escher, Bach: An Eternal Golden Braid*. New York: Basic Books. (Selections.)

James, Jamie. 1995. *The Music of the Spheres: Music, Science, and the Natural Order of the Universe*. Göttingen: Copernicus. (Selections.)

Kaila, Ilari. 2019. “Contrapuntal Consciousness.” *Aeon Magazine*.
<https://aeon.co/essays/what-the-music-of-bach-can-teach-us-about-consciousness>

Pareyon, Gabriel (ed.). *On Musical Self-Similarity: Intersemiosis as Synecdoche and Analogy*. Acta Semiotica Fennica XXXIX, Approaches to Musical Semiotics Series. (Selections.)

Patel, Aniruddh. 2006. “Musical Rhythm, Linguistic Rhythm, and Human Evolution.” *Music Perception*. 24 (1): 99–104.

Rothstein, William. 1990. *Phrase Rhythm in Tonal Music*. New York: Schirmer Books. (Selections.)

Sacks, Oliver. 2007. *Musicophilia: Tales of Music and the Brain*. New York: Alfred A. Knopf. (Selections.)

Tatlow, Ruth. 2015. *Bach’s Numbers: Compositional Proportion and Significance*. Cambridge: Cambridge University Press. (Selections.)

Tylor, Mark (ed). 1998. “15. Religion, Religions, Religious.” *Critical Terms for Religious Studies*. Chicago: University of Chicago Press.

Varese, Edgard. 1966. “The Liberation of Sound.” Perspectives of New Music, Vol. 5, No. 1 (Autumn - Winter, 1966), pp. 11-19.

Wolff, Christoph. 2000/2013. *Johann Sebastian Bach: The Learned Musician*. New York: W. W. Norton & Company.