

BOCCONI UNIVERSITY
BROADEN YOUR FRAME SEMINAR SERIES
2025-2026

ARTS AND CULTURE: MATHS AND MUSIC

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Abstract

Music is a universal language. It needs no translation, but it reaches the hearts and minds of all human beings. What are the secrets of its beauty? What makes it communicate emotions like joy and tranquility rather than sadness or rage? How do composers create the wonders we all listen to? This course will guide us on an in-depth tour of the inner mechanisms of music. We will explore the meaning of melody and the relationships between mathematics and harmony. We will start with harmonic ratios and progress through advanced chords in classical and jazz music. We will learn about the surprising circle of fifths and touch upon the concept of counterpoint. Then, we will examine some of the main musical structures, looking into the form of songs and sonatas. Surprisingly, we will see that mathematical concepts like periodicity, fractals, and topology have musical counterparts. We will consider how virtuosity and instrumentation help build emotions, listening through a limitless series of incredible pieces. We will also explore the connections between music and movies, computers, and briefly discuss the role of artificial intelligence. Additionally, we will look at how scientific literature has addressed these topics in what Johann Sebastian Bach called "the Science of Music". Renowned guests from the musical world will join us on this journey.

Calendar

Session 1 **24 March 2026** 6:15-7:45PM Room TBA

Session 2 **31 March 2026** 6:15-7:45PM Room TBA

Session 3 **14 April 2026** 6:15-7:45PM Room TBA

Session 4 **16 April 2026** 6:15-7:45PM Room TBA

Session 5 **21 April 2026** 6:15-7:45PM Room TBA

Session 6 + FINAL ASSIGNMENT **23 April 2026** 6:15-7:45PM Room TBA

Please note: a detailed program of the Seminars will be available soon.