

# Using Continued Fractions to Develop Musical Scales

What: **Bi-State Colloquium**

When: **Friday, November 9, 4:00pm**

Where: **Loras College, Hennessy 250**

Who: **Alex Nelson**



In this seminar presentation, the origin of the twelve-tone Western musical scale will be explained. In particular, we will investigate why exactly twelve tones are used. This will lead to a discussion of the mathematical basis of Pythagorean, Just, and Equal Temperament tuning systems, including the relative advantages of and difficulties with each. In addition, the concept of continued fractions will be developed and utilized to identify alternatives to the standard twelve-tone scale. Using this approach, the musical octave can be divided into a different number of tones by emphasizing intervals that are usually considered less important musically.

Alex Nelson is a senior mathematics major at Loras. This presentation is in partial fulfillment of the Loras College mathematics major.