



Survey of Just Intonation

K. Scott Eggert, Professor

COURSE OBJECTIVES

This class will give the student a clear and nuanced understanding of the philosophy and history of Just Intonation (JI) tuning theory, and to acquaint them with the composers and theorists responsible for the JI movement (as well as those working to continue the movement in the present day), that began in the United States in the 20th century with the groundbreaking work of American composer Harry Partch. By the end of this class, students should be able to:

- understand pitch relationships within the context of JI—as ratios, indicating a mathematical relationship to a central pitch, based on the harmonic series.
- discuss the origins of tuning theory, and the theorists responsible for the revival of Pythagoreanism in music in the 20th century.
- listen to music in JI, and describe it analytically and critically.
- differentiate between the styles and works of various JI composers.

REQUIRED TEXTS

Genesis of a Music: an Account of a Creative Work, its Roots and its Fulfillments, by Harry Partch, 2nd ed. Da Capo Press, 1974.

Tuning and Temperament: A Historical Survey, by J. Murray Barbour. Dover Publications, 2004.

ADDITIONAL READINGS

“One Voice: a Reconciliation of Harry Partch’s Disparate Theories,” by Brian Timothy Harlan. PhD diss., University of Southern California, 2007.

“Just Intervals and Tone Representation in Contemporary Music,” by Robert Tatsuo Hasegawa. PhD diss., Harvard University, 2008.

“The Evolution of Harry Partch’s Monophony,” by Richard M. Kassel. PhD diss., City University of New York, 1996.

Tone: A Study in Musical Acoustics, by Sigmund Levarie and Ernst Levy. Oberlin Printing Company, 1968.

The Just Intonation Primer, by David B. Doty. The Just Intonation Network, 1994.

"Maximum Clarity" and Other Writings on Music, by Ben Johnston. University of Illinois Press, 2006.

SPECIFIC ASSIGNMENTS, PAPERS, AND TESTS

1. Papers (40%)
 - a) Biographical sketch of a theorist or composer who has written JI works.
 - b) Critical review of a well-known JI composition, other than those covered in class.
2. Composition (20%)

Students must compose a melody, 8-16 measures long, using JI intervals in a chosen notation method.
3. Tests (40%)

There will be a midterm and a final exam, both of which will test the students' retention of JI concepts and knowledge of JI composers.

WEEKLY LESSON SCHEDULE

Week 1: Introduction, Pythagoras and the Monochord, Ratios vs. the Ear, String Length vs. the Harmonic Series.

Week 2: Harry Partch, *Genesis of a Music*, Roots in Helmholtz and Mersenne, JI Terminology.

Week 3: Partch pt. 2, the Tonality Diamond, Relationship to the Pythagorean Table.

Week 4: Partch pt. 3, Critical Listening: *Castor and Pollux*, *Barstow*, *Two Studies on Ancient Greek Scales*, *U.S. Highball*. Assignment #1: Biographical Sketch.

Week 5: JI Notation Systems: Dean Drummond, Ben Johnston, Sagittal Notation.

Week 6: Critical Listening: Ben Johnston, *String Quartet #4 "Amazing Grace"*, *Suite for Microtonal Piano*.

Week 7: Review & Expansion: Consonance/Dissonance in JI, Harmony and Number.

Week 8: Midterm Exam.

Week 9: Critical Listening, Minimalist Crossover: *The Well-Tuned Piano* by LaMonte Young, *Shri Camel* by Terry Riley, *Revelation* by Michael Harrison. Assignment #2: Review of a JI work.

Week 10: Critical Listening, More Children of Partch: Lou Harrison, *Dance of the Seven Veils* by Dean Drummond.

Week 11: JI Scales & Modes, JI Approximations in EDOs.

Week 12: Critical Listening: *Chrysalid Requiem* by Toby Twining, *A New Waltz in Pelog* by David B. Doty, *Custer and Sitting Bull* by Kyle Gann.

Week 13: Critical Listening: *For Johnny Reinhard* by Georg Friedrich Haas. Discussion of 128-JI. Johnny Reinhard's "Eighth Octave Overtone Tuning." Assignment #3: Melodic Composition in JI.

Week 14: Critical Listening: *Symphony No. 3 (Gloria)* by Glenn Branca, the Deep Listening Band (Pauline Oliveros).

Week 15: Other Theorists: Alain Danielou.

Week 16: Review for Final Exam