Intonations, Tunings, Scales, and Microtonality in Euro-American Art Music
Music Theory Seminar for Graduate Students
Instructor: Dr. Navid Bargrizan
nbargrizan@ufl.edu

Course Description
Twelve-tone equal temperament constitutes one of the several intonational and tuning systems used in Western art music since antiquity until the present time. Other systems containing microtonal divisions, have offered various ways of approaching the phenomenon of tone beyond the boundaries of the equal divisions of the octave into half- and whole-steps. Whether based on acoustical properties of the harmonic series and psycho-acoustical concepts, influenced by non-Western scales and tunings, or presenting elaborated equal divisions of octave (e.g. to twenty-four or thirty-six steps), these different systems have one characteristic in common: they all reject the dominance of twelve-tone equal temperament and attempt to break through its limited, monolithic scope.

This course is a music-theoretical, (psycho-) acoustical, aesthetic, and historical study of the precepts of intonational practices, tuning methods, scale formations, and microtonal music since antiquity. Through analysis of various intonational, microtonal, and tuning ideas that have emerged in separate historical contexts, it illuminates the significance of such ideas in the works of twentieth- and twenty-first-century composers. It grants contemporary composers a toolbox of tuning, intonational, and microtonal concepts; gives contemporary performers insight into issues related to tuning and intonation; and provides music theorists and historians perspective into the inner functioning of non-twelve-tone, equal-tempered music.

This seminar is intended for graduate students in music theory, composition, musicology, or performance, as well as advanced undergraduate students interested in the subjects of tuning, intonation, and microtonality. Successful passing of Music Theory Survey sequence and Music History Survey sequences, as well as Aural Skill and Analytical Techniques, is required.

We will listen to microtonal works, examine scores of microtonal music, and will critically read theoretical texts related to the musical and aesthetic tenets of microtonal ideas. The seminar will consist of class discussions, listening examples, score analysis, and student presentations.

Examining the most significant theoretical (before and after twentieth century) and compositional (in the twentieth- and twenty-first centuries) efforts by music theorists and composers, as well as attempts to build novel microtonal music instruments, the seminar consists of an introduction, four modules, and a conclusion:

Introduction: Why do we need to study intonational practices, tuning systems, and microtonal scales? What is their significance for contemporary musicians? Harmonic Series and its Properties.

Module 1: Antiquity to the Sixteenth Century: Greek Music Theory and Medieval Temperaments
Module 2: Baroque to the Twentieth Century: Toward Equal Temperament and Outliers
Module 3: 1900-1950: Elaborated Equal Temperaments and Rediscovering Just Intonation
Module 4: 1950-Present: Extended Microtonal and Spectral Structures

Conclusion: Where do we stand now with regard to intonational practices, tuning systems, and microtonality? How does microtonality create challenges, possibilities, and opportunities for composers, performers, and researchers?
Required Texts
Excerpts from the following books:


In addition to chapters from these books, weekly periodical articles (See page 6-7), other book chapters, Grove Music entries, MGG entries, scores, and recordings will be assigned.

Recommended Texts
- 17th Edition of *The Chicago Manual of Style*
- 9th Edition of Turabian’s *A Manual for Writers*

Attendance and Participation in Class Discussions
Consistent and punctual attendance is expected for every class meeting, and your participation in the discussions is integral to the effectiveness of the course. Absence or tardiness will impact your grades. No absence will be excused without proper documentation. You are fully responsible for all assigned work, regardless of attendance or punctuality. If you miss a class for any reason, you are responsible for getting notes from a fellow student, not the instructor. Make-up class presentations will only be administered under unusual and documentable circumstances (e.g. medical excuse with documentation from a physician’s office, or hospital). Students are expected to show up on time for their presentations unless the instructor is notified in advance or shown written documentation after the fact.

Late Policy
Class presentations and analytical essays are due on the assigned dates. Late essays will receive a 10% grade deduction per day.

Conduct
Disrespectful behavior by any student to a fellow classmate, or the instructor, is unacceptable under any circumstances. Such behaviors include, but are not limited to, arriving late/leaving early, sleeping in class, text messaging, doing non-course related reading/homework, and discrimination of any type. Laptops, cell phones, and tablets are to be silenced and put away for the duration of class. In any such case, the instructor may ask the student(s) to leave the classroom. Our classroom is an open classroom, your discussions and views will be heard and respected if delivered in a respectful manner.

Academic Honesty
All violations of academic honesty will be referred to the Dean of Students Office for disciplinary action without exception. Plagiarism or cheating will result in a failing grade for the plagiarized assignment, and possibly the course. Students are bound by The Honor Pledge. The Honor Code specifies a number of behaviors that are in violation of this code, and the possible sanctions. Furthermore, you are obligated to
report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or.

**Accommodations**
Students requesting classroom accommodations must first register with the Disability Resource Center by providing appropriate documentation. Once registered, students will receive an accommodation letter that must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester. Accommodations are not provided retroactively.

**Additional Resources**
1. Campus Writing Center: Students are encouraged to use the Campus Writing Center for extra help with the writing assignments. Students who use the Writing Center must submit all drafts of the paper, including the suggestions and revisions from the center. If you are asked to use the writing center, you will be expected to do so and to submit all drafts of your paper.
2. Other resources are available on campus for students having personal problems that affect academic performance or difficulty defining career and academic goals:
   - University Counseling Center for personal and career counseling
   - Student Mental Health for personal counseling; Student Mental Health Care Center
   - Center for Sexual Assault/Abuse Recovery Services, Student Health Care Center
   - Career Resource Center, career development assistance and counseling

**Evaluation**
The grades for this course will be broken down as follows:

- 40% = Analytical essay (10-15 pages)
- 30% = Class presentation (20 minutes)
- 15% = Participation in the class discussions
- 15% = Attendance
- 5% = Extra credit for performing microtonal music, or presenting composed microtonal pieces

Instructions for class presentations and analytical essay will be given during the first week.

**Grading Scale**

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<th>Grade</th>
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<td>A</td>
<td>94-100%</td>
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<td>A-</td>
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<td>B+</td>
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<td>B</td>
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**Course Schedule**

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<th>Week</th>
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| 1    | Why Microtonality?; Introduction to Microtonality, Intonation, Tuning, Harmonic Series, and Just Intonation  
       Pickles, *An Introduction to the Physiology of Hearing*, introduction. |
Module 1
Antiquity to the Sixteenth Century: Greek Music Theory and Medieval Temperaments

2 Ancient Greece: Tetrachord, Genus, Modus, Diesis, Leimma, and Pythagorean Tuning
   Neuwirth, Musical Temperament, p. 23–33.
   Grove Music Online and MGG: Ancient Greek Music
Music: Stahnke’s Third String Quartet: Penthesilea

Module 2
Baroque to the Twentieth Century: Toward Equal Temperament and Outliers

4 Circle of Fifths, Well Temperament, Equal Temperament, Thirty-One-Tone Scale (Huygens-Fokker)
Text: Grove Music Online and MGG: Huygens, Christiaan
   Grove Music Online and MGG: Fokker, Adriaan Daniel
   Neuwirth, Musical Temperament, p. 42–49.
Music: Bach’s Well-Tempered Clavier (Harpsichord vs. piano versions); Sander Germanus’ L’ultimo minuto di Donna Maria for 31-tone Organ

Module 3
1900-1950: Elaborated Equal Temperaments and Rediscovering Just Intonation

6 Twenty-Four and Thirty-Six-Tone Equal Temperaments: Bussoni, Ives, Carillo, Foulds, and Stein
   Grove Music Online and MGG: Carrillo, Julian
Music: Ives’ Fourth Symphony; Carrillo’s Cometa

7 Hába and his Microtonal Theory of Harmony; Wyschnegradsky’s Ultrachromatic Music; Henry Cowell’s New Musical Resources
   Myles Lee Skinner, “Toward a Quarter-Tone Syntax: Analysis of Selected Works by Blackwood, Haba, Ives and Wyschnegradsky,” (PhD Diss.), Chapter 3.
   Grove Music Online and MGG: Hába, Alois
   Grove Music Online and MGG: Wyschnegradsky, Ivan
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<th>Module 4</th>
<th>1950-Present: Extended Microtonal and Spectral Structures</th>
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| **8** | **Harry Partch and his Theory of Just Intonation, his Instruments, and his Compositions**  
**Text:** Partch, Harry, *Genesis of a Music*, preface, chapter 1–2, and 7–14.  
Grove Music Online and MGG: Partch, Harry  
**Music:** Partch’s *Seventeen Lyrics by Li Po*; *U.S. Highball, Delusion the Fury* |
| **9** | **Following Partch’s Footsteps: Lou Harrison, Ben Johnston, La Monte Young, and others**  
**Text:** Johnston, Ben.  
Grove Music Online and MGG: Harrison, Lou; Johnston, Ben; Young, La Monte  
**Music:** Johnston’s *String Quartet No. 7*; Harrison’s *Scene from Nek Chand*; Young’s *The Well-Tuned Piano* |

## 10
**Microtonality in the Works of the Avant-garde Composers and other Parallel Movements**  
**Text:** Louise Duchesneau, György Ligeti: *Of Foreign Lands and Strange Sounds*, chapters 4, 7, 8.  
**Music:** Ligeti’s *Violin Concerto*; Ferneyhough’s *Unity Capsule* |

## 11
**Ekmelik Music, the Works and Theories of Richter Herf and Maedel**  
Grove Music Online and MGG: Richter Herf, Franz  
Grove Music Online and MGG: Microtonal Instruments  
**Music:** Richter Herf’s *Odysseus*; Maedel’s *Choral Movement for 3 Trombones* |

## 12
**The Influence of Non-Western Microtonal Music, among others, in Harrison’s, and Stahnke’s Works; the Influence of electronic Devices on Microtonality: Yamaha DX7**  
**Music:** Harrison’s *Suite for Violin and American Gamelan*; Stahnke’s *Ansichten Eines Kaefers and Graffiti for Synthesizer* |

## 13
**Spectral Music and Post-spectral Conceptions: among others, Grisey, Murail, and Haas**  
Joshua Finneberg et al., “Models & Artifice—The Collected Writings of Tristan Murail,” in *Contemporary Music Review* 17(1), 115–120.  
**Music:** Grisey’s *Les espaces acoustiques* and *Vortex Temporum*, Murail’s *Désintégrations*; Haas’ *In Vain* |

## 14
**Stahnke’s Flexible Microtonal Approach: His Hybrid “wässriges System” and Bohlen-Pierce Scale**  
The instructor reserves the right to adapt the and course schedule, at any time. Possible changes will be announced in the class, or sent out to the class via listserv, in a timely manner.

**Further Sources**


———. “Parallel Trajectories in Manfred Stahnke’s Internet Opera *Orpheus Kristall.*” *Econtact! Online Journal for Electroacoustic Practices* 18 (4).


