

Cover Letter

Tuning and Temperament: Analytical and Historical Approaches

Attached is a syllabus for an intermediate-level theory course I first offered in Spring 2023 to a group of thirteen students, entitled "Tuning and Temperament: Analytical and Historical Perspectives." It is open to those with interests in music analysis, history, science, ethnomusicology, and composition, serving as preparation for upper-level seminars in each of these fields of musical study. It is structured to be broadly accessible, as the only pre-requisites are a knowledge of notation and the rules of basic diatonic harmony, both covered in the first-year theory course at my institution. The goal of the course is to acquaint students with the skills they need to analyze music from unfamiliar contexts and cultures responsibly, with careful attention to their positionality and the thoughtful application of appropriate research tools.

The six units are designed to provide students with the technical skills they need to approach the topic, and the critical mindset they need to be able to contextualize and apply their knowledge. Unit 1 provides students with an introduction to the physics and psychoacoustics of tuning theory, as well as the suite of digital tools we will use to analyze, experiment, and create. Unit 2 introduces the earliest written sources on the topic from India, China, and the Mediterranean, acquainting students with the historical depth and philosophical range of this field of inquiry. Units 3 and 4 plunge into the mechanics of historical keyboard temperaments and tuning systems while elucidating the various aesthetic and social priorities that have shaped them. Unit 5 then examines the role that "quantizing" technologies like keyboards, fretboards, and AutoTune play in shaping politics, gender, race around the world. Unit 6 concludes with four case studies of contemporary composers whose works probe the nuances of tuning systems.

I designed this course with five main pedagogical goals, each of which prepares students to pursue a diverse range of topics in future years of their study:

- 1) **Introduce students to the (global) history of music theory.** I am convinced that teaching students to place theoretical and analytical knowledge in historical context is crucial from the outset. Doing so illustrates how our field is dynamic and ever-changing, and is shaped by broader social and cultural concerns. Approaching history from a "global" perspective, moreover, prepares students to view claims of intellectual ownership skeptically, by showing how knowledge circulates around the world. To this end, the history of equal temperament provides a case in point.) Thinking historically also prepares students to think critically about the lessons they learn in the classroom, by showing them the importance of placing them in context. For these reasons, I oscillate between historical topics and analytical topics so that by the end of the course students refuse to take anything I teach them for granted.
- 2) **Emphasize the importance of listening carefully, critically, and cross-culturally.** Much of the class functions as an ear training course: Units 1 and 2 are spent learning how to count beats, tune instruments by ear, recognize temperaments from

recordings, and so forth. At the same time, the historical sections of the course introduce students to how our listening practices are shaped by broader social, cultural, and political concerns. (This is clearest when we address the early history of comparative musicology in week 8.) The objective is for students to deepen their listening skills while retaining a focus on how positionality shapes how we listen.

- 3) **Work with non-textual sources for music theory.** Beyond written sources, we learn how to glean analytical insights from instruments, archaeological remains, diagrams, software specifications, and so forth. The idea is for students to gain comfort working with non-written/Oral traditions, while at the same time encouraging them to think broadly about the various guises theory might take.
- 4) **Gain digital literacy.** I ran several workshops and courses in the Music Tech lab at our department that were designed to help students gain fluency with software applications for music analysis, such as Sonic Visualiser and Ableton (as well as a several powerful VSTs, like Surge). Students also learned how to use Microsoft Excel for simple computational tasks and statistical analyses. The goal is to get students thinking about how their computers can extend their analytical research.
- 5) **Learn through hands-on experimentation and composition.** Class time was spent working directly with instruments and analytical tools. (For our gamelan workshop, students recorded instruments with USB microphones running through Sonic Visualiser; when I offer the course in future years, I will include a monochord building workshop at a Maker Space, and a piano tuning workshop in the Piano Tech lab.) This ensures that the course caters to a wider range of learning styles, while also granting students first-hand experience with what scientific enquiry entails, so they are better informed to think critically about empirical research. Members of the class also have ample opportunity to explore the tuning and temperament systems we study through composition exercises. All this is intended to show how creative play can inform our analytical pursuits, and how we can channel our analytical insights into the music we make.

In designing the course, I was initially apprehensive about the range of topics, but was delighted to find that my students jumped at the opportunity to forge creative connections between them. Course discussions were the liveliest I've had in my teaching career so far, and final projects showcased a wide range of topics: from modern reconstructions of ancient Chinese tunings, to enharmonicism in performances of Gregorian chant, to the (supposedly) Anatolian tunings of the "Flying Microtonal Banana" used King Gizzard & the Lizard Wizard.

Tuning theory has long been used to quantify the diversity of the world's music, furnishing objective metrics for the definition of cultural differences—at times in support of articulating what makes musical cultures unique, but at other points to obscure cross-cultural connections and sameness for a host of political reasons. My hope, then, is that all students of this course learn how to think critically about the concept of "diversity" itself and how it has been applied in music studies—with an eye towards what we will continue to gain from thinking broadly and inclusively, and a retained focus on the power structures that shape our pursuits in this field.

MUSI 204
Tuning and Temperament: Analytical and Historical Approaches

Instructor: Daniel Walden
Stoeckel 313
Class Time: MW 4-5:15
Office Hours: 2:30-3:20



Course Description:

This course combines scientific, practical, and historical methods in examining theories of tuning and temperament from the past two millennia. We will consult primary and secondary sources in our investigations ranging from Sanskrit tunings to Bach's temperaments to 19th-c. Mexican microtonalism to hyperpop. We will build and experiment with instruments in the classroom, cultivate the skills to tune keyboards in various ways, learn how to operate auto-tune software and applications for advanced acoustical analysis, and construct our own musical temperaments. The overall goal will be to recognize how the seemingly abstract principles of tuning and temperament have affected the course not just of music history, but of science, technology, and society.

Course Format:

Meetings are held twice per week on Mondays and Wednesdays, 4 pm – 5:15 pm. Instructor office hours will also be on Wednesdays 2:20-3:20; please sign up for a slot

here. If you need to meet but are unable to attend during that time, please contact me via email (daniel.walden@yale.edu) to make an appointment.

Prerequisites:

Ability to read notation and an understanding of basic diatonic harmony. Please note there will be math involved, but the calculations we will need to make are very straightforward: mostly adding and subtracting fractions, or applying logarithmic functions. We will also exploit a wide variety of easy-to-use calculators, so don't let this deter you!

Required Course Materials:

There are no required textbooks or software subscriptions. The written materials (readings, worksheets, etc.) will be available on Canvas; all necessary tools and software will be made available 24/7 in the Music Tech lab on the 4th floor (swipe card access will be provided).

Assessments and Grading:

20% — Attendance

This is a hands-on course, and we will spend a great deal of time making music together. For that reason, attendance is crucial, for both your own benefit and that of your peers! You are permitted two unexcused absences per term, but each additional unexcused absence will result in a deduction of your final grade for the course by 2%.

20% — Blogposts

You will be asked to write blogposts (up to 250 words) over the course of the semester in response to various prompts. These will be graded as complete/incomplete; to receive a complete mark (i.e. full credit), you must submit them by the end of the day on Friday during the week they are due. There are five blogposts assigned in total; you have one "free pass," and are required to write only four of them.

10% — Quizzes

There will be three short quizzes (approx. 15 min) held in-class over the course of the semester that involve listening, matching, and short definitions.

15% — Midterm Project (due 3/1): Analyzing a Temperament

Please select a temperament from the list that I provide. Reconstruct that tuning system on Surge-by ear or by calculation-and experiment with its various properties. Which qualities do you find appealing, which are less so? What are some of the musical contexts in which that system might be effective?

Then select one of the following two options:

- 1) Compositional Exercise: Compose and/or record a 2-3 min piece for any instrument that shows off the most interesting qualities of the temperament. You may use Melodyne, Surge, Autotune, or anything else you wish, to polish your

recording. Then write a 5-page paper explaining how the tuning system works, and how you applied it in your work.

- 2) **Scientific Study:** Write a "scientific" analysis of that tuning system. What are the various mathematical symmetries it contains? What are the psychoacoustical principles (just-noticeable-difference, beats, etc.) that it takes advantage of in its composition?

25% — Final Project (due 5/3): Analytical or Historiographical Essay

Write an approx. 10-page paper focusing on one of the following prompts:

- 1) *Analytical Essay:* Select a musical piece from any time or place that a) is not in 12-tone equal temperament, and b) has been either recorded and/or notated. Write a detailed analysis of that piece and how it makes expressive use of intonation in conjunction with other musical properties (timbre? rhythm?). Use the text/recording to guide your analysis, and extract examples that illustrate your argument.
- 2) *Historiographical Essay:* Select an episode from the history of discourse about tuning and temperament and reflect on a) the broader context behind that episode, i.e., where-when-what-who-why; b) the broader relevance of that episode, i.e., what was at stake; c) what that historical episode can teach us about the present day.

NB: Please schedule a 15-min meeting with me **before Week 11** to discuss your topic of choice. We will determine a rough outline together, and I will point you towards literature that can support your project.

10% — Presentation of Final Project

Give a short 5-7 min presentation of your final project, followed by a brief Q&A, before your peers.

Accessibility:

I am strongly committed to creating an inclusive learning environment. Many of us (myself included) have needed or will need accommodations at some point during our studies in order to help us achieve our best. Please don't hesitate to let me know if there are any aspects of the course that prevent you from learning or participating, and we will work together to find a solution. Please also make use of the various resources Yale offers: Student Accessibility Services, Music Department Tutors (get in touch with me for more info), Academic Strategies, Residential College Writing Tutors, and the Writing Center.

Academic Integrity:

Academic integrity is a core university value at Yale that ensures respect for the academic University, your professors and peers, and most importantly, your own achievements. It involves, among other things, truth in presentation, diligence in citing works that you use, and acknowledging collaborations with others. The Undergraduate Regulations prohibit forms of behavior including: cheating on

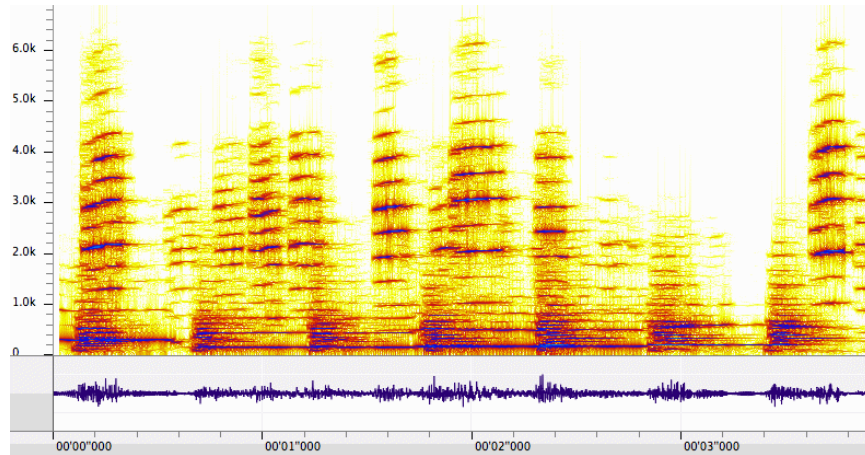
examinations or assessments; plagiarism (that is, the failure in any written exercise to acknowledge ideas, research, or language taken from others); and multiple submission of the same work without obtaining explicit written permission from both instructors before the material is submitted. Students found guilty of violations are subject to one or more of the following penalties: written reprimand, probation, suspension (noted on a student's transcript) or dismissal (noted on a student's transcript). If you have any questions related to academic integrity, do not hesitate to get in touch with me.

Communication:

I will be reachable by email during normal working hours (Monday-Friday 8-5 PM) and will do my best to respond you any inquiries promptly. Please note that I may not reply to messages in the evenings or on the weekends unless it is regarding an emergency.

Course Summary

Unit 1: Key Concepts and Research Tools



Week 1: Tuning In (I)

1/17: Orientation: general overview, key terms, etc.

1/19: What is musical tuning?

- Reading:
 - o “Tuning” in *Oxford Music Online*.
 - o William Sethares, “The Science of Sound” in *Tuning, Timbre, Spectrum, Scale* (Springer, 2004): 11-36.
- Please fill out the **introductory survey** on Canvas.

Week 2: Tuning In (II)

1/22: What is a temperament?

- Reading:
 - o “Temperaments” and “Intonation” in *Oxford Music Online*.
 - o Ross Duffin, “Prelude,” “Shouldn’t Leading Notes Lead?” and “How Temperament Started” in *How Equal Temperament Ruined Harmony* (Norton, 2007), 15-45.

1/24: Lab Day: Tools for Experimenting with Tuning and Temperament

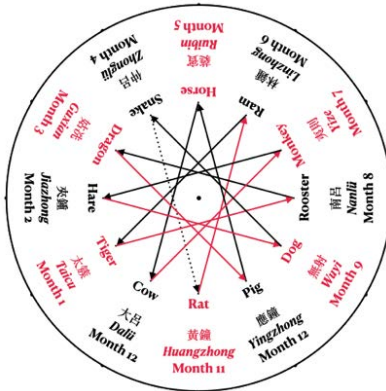
****Today we meet at the Music Technology Labs (RM 407).****

- Preparation:
 - o Explore [Scale Workshop](#).
 - o Install [Ableton Lite](#), [Surge VST](#), and [Sonic Visualiser](#).

Blogpost 1 (due end of day 1/26):

Listen closely to the recordings of Prelude No. 1 from Bach's Well-Tempered-Clavier in C Major in Pythagorean tuning, just-intonation, $\frac{1}{4}$ -comma meantone, Werckmeister, and 12-tone equal temperament. Pick three of them and write a short essay comparing/contrasting them. What sounds "in tune" and what sounds "out of tune?" What do you find most effective? What do you find displeasing?

Unit 2: Ancient Written Sources



Week 3: Early Written Sources (I): India and Greece

1/29: Tuning in Early India: śruti and svara in Sanskrit sources.

- Readings:
 - o Lewis Rowell, "Pitch," in *Music and Musical Thought in Early India* (U Chicago, 1992): 144-157.
- // Optional: //
 - o For a sense of what it is like to read the original Sanskrit sources, you can check out: "Nāda, Śruti, Svara" from *Samgītaratnākara*, trans. by R.K. Shringi (Delhi: Banarasidass, 1996): 108-159.

1/31: Tuning in Ancient Greece: Pythagoras vs. Aristoxenus.

- Readings:
 - o Sophie Gibson and Georgia L. Irby-Massie, "The Science of Harmonics and Music Theory in Ancient Greece," in *A Companion to Science, Technology, and Medicine in Ancient Greece and Rome* (Wiley, 2016): 161-178.
- // Optional: //
 - o For a sense of what it is like to read the original Greek sources, you may want to quickly skim extracts from: *Elementa Harmonica* by Aristoxenus, translated in *Greek and Roman Musical Writings*, trans. Andrew Barker (Cambridge: Cambridge University Press, 1989): 119-184.

Week 4: Early Written Sources (II): China and Medieval Europe

2/5: Tuning and Cosmology in Early Modern China

- Readings:
 - Sheryl Chow. "Watching the Ether: An Irreplicable Experiment on Pitch-Pipes (Parts I and II)." *Blogpost to the History of Music Theory SMT Interest Group & AMS Study Group*. 22 March 2022. <https://historyofmusictheory.wordpress.com/2022/03/>
 - "Triple Divisions—Key Points from the Treatises on Music (c. 680)." Translation of Key Points from the Treatises on Music by Zhuqing (Lester) Hu. *From the Reed Ashes Pavillion: Sources of Chinese Music History in Translation*. 4 June 2021. <https://chinesemusicresources.com/>

Quiz 1 (2/7, in class): Listening, matching, short definitions from Units 1 and 2.

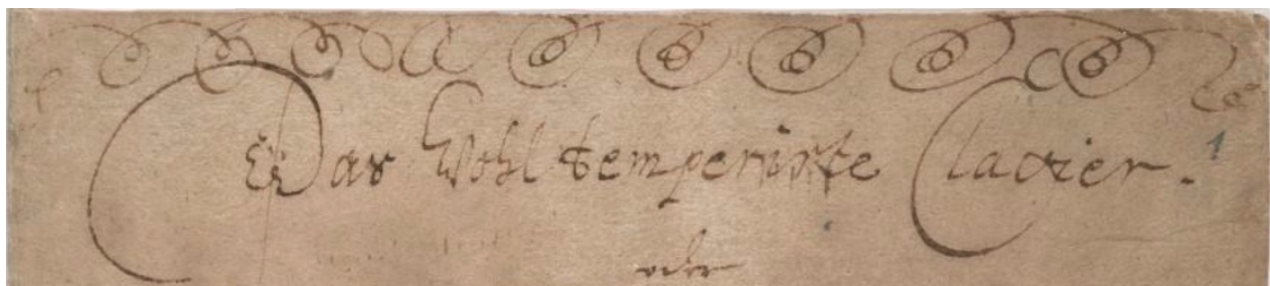
2/7: Medieval Canonics and Enharmonic Revivals

- Readings:
 - Jan Herlinger, "Medieval canonics." In *Cambridge History of Western Music Theory* (Cambridge: Cambridge University Press, 2008): 168–192.
- Listening/Viewing:
 - Check out the harmonies of the spheres at www.system-sounds.com.
 - Watch "[Musica Prisca Caput](#)" by Nicola Vicentino, recorded by Johannes Keller.

Blogpost 2 (due end of day 2/9):

Compare and contrast the ways in which Indian, Greek, and Chinese sources discuss the principle of musical sound, tuning, and temperament. Drawing both on the primary and secondary sources you read, reflect on the following: to what extent do you see their approaches as grounded in physics, metaphysics? What extra-musical connotations do they highlight that you find most striking?

Unit 3: Temperaments



Week 5: Keyboard Tunings

2/12: Meantone: Origins and Affordances

- Readings:
 - o Mark Lindley, "Early 16th-Century Keyboard Temperaments," *Musica Disciplina* 28 (1974): 129–151.
- Listening:
 - o Christopher Stenbridge, *Consonanze Stravaganti*, Ars Musici AM 1207–2.

2/14: Well-Temperaments: Or, how did Bach tune his keyboard?

- Readings:
 - o John Barnes, "Bach's keyboard temperament: Internal evidence from the Well-Tempered Clavier," *Early Music* 7:2 (1979): 236-249.
 - o Bradley Lehmann, "Bach's Extraordinary Temperament: Our Rosetta Stone – I," *Early Music* 33:1 (2005): 3-23.

Week 6. Equal Temperament(s)

2/19: Who discovered equal temperament? Records from Europe and Asia.

- Reading:
 - o Alexander Rehding. "Fine-Tuning a Global History of Music Theory: Divergences, Zhu Zaiyu, and Music-Theoretical Instruments." *Music Theory Spectrum* 44/2 (2022): 260–275.
- Listening/Activities:
 - o John Dowland, "Almain for Lute," and "Dream." Recorded by Paul O'Dette.

2/21: Equal Temperament: Pros and Cons

- Reading:
 - o Ross Duffin, "The Limbo of That Which is Disregarded" and "Where Do We Go From Here?" in *How Equal Temperament Ruined Harmony (and Why You Should Care)* (WW Norton, 2007): 138–159.
 - o Hugo Riemann, "Ideas for a Study 'On the Imagination of Tone,'" translated by *Journal of Music Theory* 36:1 (Spring 1992): 81-117.
****Focus on pp. 81-100.****
- Preparation:
 - o Prepare for debate activity by gathering arguments for and against equal temperament.

Blogpost 3 (due end of day 2/26):

Select one of the "recipes" for Kirnberger II, Kirnberger III, Vallotti, or Young II and try to tune that system entirely by ear using Surge. You can find them [here](#): select "Temperament" from the first drop down menu, and then your chosen system on the next page.

// NB: It will definitely be easiest if you do this with a MIDI keyboard: either your own, or one in the Music Tech labs. But you can also try doing this with your computer keyboard. Just make sure the little keyboard logo is illuminated in yellow as shown below, and then your computer keyboard will function like a piano keyboard. //



Once you're satisfied with the result, check the values you obtain and compare them to the values calculated mathematically on this discussion board on Canvas. (Just do a search for the tuning system in the field on the upper right and it will bring up the relevant Scala files.) How far off were you? Which intervals did you have the most difficulty calculating? What does this tell you, more broadly, about the challenges of tuning temperaments by ear?

Unit 4: On and Off the Grid: Tuning Standards (and Deviances)



Week 7: Emancipate the Quartertone!

2/26: Reaching Between the Keys: Johanna Kinkel on Fryderyk Chopin

- Reading:

- Daniel K.S. Walden, “Emancipate the Quartertone: The Call to Revolution in Nineteenth-Century Music Theory,” *History of the Humanities* 2:2 (2017): 327-344.
- Listening:
 - Chopin, Nocturne in B Major, Op. 9 no. 3. Recorded by Brigitte Engerer.
 - Chopin, Impromptu in A-flat Major, Op. 29. Recorded by Artur Schnabel.
 - Chopin, Prelude No. 23 in F Major, Op. 28. Recorded by Alfred Cortot.

2/28: Microtonality and Nationalism: Julián Carrillo and Mikhail Mishaqa

- Reading:
 - Alejandro Madrid, “Modernism, Teleology, and Identity: Toward a Cultural Understanding of Early Sonido 13,” in *In Search of Julián Carrillo and Sonido 13* (Oxford U. Press, 2015): 103-135.
 - Shireen Maalouf, “Mīkhā’il Mishāqā: Virtual Founder of the Twenty-Four Equal Quartertone Scale.” *Journal of the American Oriental Society* 123/4 (2003): 835–840
- Listening:
 - Julián Carrillo, “[Meditación](#).” Live recording by Momenta Quartet.

<p>Midterm (due by end of day, 3/1): Close Study of a Temperament.</p>

<p>See “Assessments and Grading” for assignment description.</p>
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Week 8: Listening to “Others”

3/4: Why does A = 440?

- Reading:
 - Fanny Gribenski, “Tuning the Nation: Aesthetics, Science, Industry, and the French Pitch,” in *Tuning the World: The Rise of 440 Hertz in Music, Science, and Politics, 1859-1955* (Chicago: University of Chicago Press, 2023): 27–58.

3/6: The Birth of Tonometrics: Alexander Ellis and Gamelan Tunings

- ****Today we meet in the Gamelan Room.****
- Reading:
 - Alexander J. Ellis, “On the Musical Scales of Various Nations,” *Journal of the Society of Arts* 33:1688 (1885): 485-532. ****Focus on pp. 485-491, 508-514****
 - Albrecht Schneider, “Psychological Theory and Comparative Musicology,” in *Comparative Musicology and Anthropology of Music*, ed. Bruno Nettl and Philip Bohlman (Chicago: University of Chicago Press, 2001): 293–317.
- Listening:

- “[Pakoe Aiman](#),” Jogiakarta Gamelan Pelog “Kinanti madumurti.” Recorded on Music of the Orient, compiled by Hornbostel (1934), Smithsonian Folkways Records (1979).
- “[Lagu Babar Lajar](#)” for gamelan, saron, bonang. Ensemble information not included. Recorded on Music of Indonesia, Smithsonian Folkways (1950).

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Unit 5: Quantizing Technologies: Keyboards, Fretboards, AutoTune



Week 9. Just Intonation Keyboards: Between Naturalism and Nationalism

3/25: England and Sierra Leone: T.P. Thompson and Nicholas G.J. Ballanta.

- Reading:
 - Selections from T.P. Thompson, *Theory and Practice of Just Intonation* (London: 1850).
 - Nicholas Ballanta. “The Seventeen Tone Octave.” Undated typescript (c. 1926).

3/27: Japan/India: Tanaka Shōhei and Krishnaji Ballal Deval

- Reading:
 - Daniel K.S. Walden with Tanaka Tasuku, “Tanaka Shōhei’s Keyboards as Instruments of the Global History of Theory,” *Acta Musicologica* 95/2 (2023): 151–176.
 - Nazir Ali Jairazbhoy, “What Happened to Indian Music Theory? Indo-Occidentalism?” *Ethnomusicology* 52:3 (2008): 349-377.
- Listening/Viewing:
 - Govindrao Tembe, “[Raga Basant Bahar](#),” undated.

Blogpost 4 (due end of day 3/29):

Puzzle out the construction of Thompson's keyboard (i.e., which key makes which sound), based on the information contained in pp. 18-20 and the diagram of the keyboard provided at the beginning of his text. Annotate Thompson's diagram of the keyboard as clearly as you can, and attach a PDF of the results. Then write a brief paragraph comparing his interface to Tanaka's (presented in class). What strikes you the most about the various affordances of their keyboard arrangements?

Week 10. Shifting Frets, Unwinding Tuning Pegs

4/1: Scordatura

- Reading:
 - o Jonathan De Souza. "Voluntary Self-Sabotage." In *Music at Hand: Instruments, Bodies, Cognition* (Oxford: Oxford University Press, 2017), 83–108. ****Focus on pp. 88-97.****
 - o Mike Frengel. "Contemporary Tuning Practices." In *Unorthodox Guitar: A Guide to Alternative Performance Practice* (Oxford: Oxford University Press, 2017): 25–50.
- Listening/Activity:
 - o Lawrence Dunn. "[Set of four.](#)" Recorded 2017.

Quiz 2 (4/1, in class): Listening, matching, short definitions from Unit 3 and 4.

4/3: The "blue note."

- Reading:
 - o Gerhard Kubelik, "The Blues Tonal System" and "The 'Flatted Fifth'" in *Africa and the Blues* (U. of Mississippi Press, 1999): 133-166.
- Listening:
 - o Ed Bell, "[Mean Conductor Blues.](#)" Recorded in 1927.
 - o Reverend Gary Davis, "[Hard Walkin' Blues.](#)" Undated video recording.
 - o Jimmy Hendrix, "[Hear My Train a Comin.](#)" Recorded in 1970.

Week 11. Autotune in Pop Music: Bodies, Nature, and Technology

4/8: Autotune and Hip-hop: Or, The Great Debate of 2014

- Reading:
 - o Catherine Provenzano, "Auto-Tune, Labor, and the Pop-Music Voice," in *The Relentless Pursuit of Tone* (Oxford U., 2018): 159-184.
 - o "[T-Pain Doesn't Think Kanye West Uses Auto-Tune 'Correctly'](#)" *Huffingtonpost.com* (Oct. 28, 2014)
 - o Simon Reynolds. "[How Auto-Tune Revolutionized the Sound of Popular Music.](#)" *Pitchfork*. 17 September 2018.
- Listening/Viewing:
 - o Cher, "[Believe.](#)"

- Kanye West feat. Mr. Hudson, "[Paranoid](#)," from *808s and Heartbreaks*
- T-Pain, "[Buy U A Drink](#)."
- Jay-Z, "[D.O.A.](#)"
- T-Pain, [NPR Music Tiny Desk Concert](#) (Oct. 29, 2014).

4/10: Autotune and Hyperpop: SOPHIE and 100 geecs

- Reading:
 - Judith Halberstam and Ira Livingston. "Introduction: Posthuman Bodies." In *Posthuman Bodies*, ed. by Judith Halberstam and Ira Livingston (Indianapolis: Indiana University Press, 1995): 1-21.
 - Sessi Kuwabara Blanchard. "How SOPHIE and Other Trans Musicians Are Using Vocal Modulation to Explore Gender." Pitchfork. 28 June 2018.
- Listening/Viewing:
 - SOPHIE, "[BIPP](#)"
 - SOPHIE, "[Immaterial](#)" and "[It's Okay to Cry](#)" from *Oil of Every Pearl's Un-Insides* (2018)
 - 100 geecs, "[money machine](#)," from *1000 geecs* (2019).
 - Also... https://www.youtube.com/shorts/s_p657VvFww

Unit 6: Wrapping Up



Week 12. New Compositional Approaches: "Rational Intonation" and "Well"-Tuning

4/15: Chiyoko Szlavnic and Catherine Lamb

- Reading:
 - Chiyoko Szlavnic. "[Opening Ears: The Intimacy of the Detail of Sound](#)." *Filigrane* (2006).
 - Catherine Lamb. "[The Form of the Spiral](#)." (2019).
- Listening:
 - Chiyoko Szlavnic. [\(a\)long lines: we'll draw our own lines \(2004/17\)](#). Performed by MusikFabrik.
 - Catherine Lamb. [Prisma Interius IX](#). Performed by Ensemble Dedalus (2018)

Quiz 3 (4/14, in class): Listening, matching, short definitions from Unit 5.

4/17: La Monte Young and Mamoru Fujieda

- Reading:
 - o Kyle Gann. "La Monte Young's 'The Well-Tuned Piano.'" *Perspectives of New Music* 31:1 (1993): 134–162.
 - o Devon Osamu Tipp, "Mamoru Fujieda's Plant Language: Hybrid Approaches to Composing for Koto." *Živá Hudba* 12 (2021)
- Listening/Activity:
 - o La Monte Young. *The Well-Tuned Piano*: 81 x 25 (6:17:50–11:18:59 PM NYC). 1987.
 - o Mamoru Fujieda. *Patterns of Plants. The Third Collection: Koto-Gamelan Set*. 1997.

Blogpost 5 (due end of day 4/19):

Make a short recording of yourself singing a melody of your choice and AutoTune it, using either Melodyne or AutoTune. (You can download free trials of both pieces of software, or run Melodyne in the lab.). What do you learn about the different knobs/controls, and what is your favorite setting? If you use Melodyne, try adjusting the timbre as well. What have you learned about your voice through the process? (No more than two paragraphs, as usual—but share your recording, if you wish!)

Week 13. Final Projects and Presentations

4/22: Final Presentations I

4/24: Final Presentations II