Ever want to fix up that old piano at home? With a little bit of engineering and physics training, one can make a huge difference. I’ll show you how to transform a $50 piano from the thrift store into something playable again. (I actually fixed and tuned my home spinet this past summer – and it came out pretty well according to my daughter who plays.)

**Introduction**

1. Modes on a wire; where the hammer hits; timbre
2. Fourier transform (the engineer’s best friend): forward, reverse, *fast*
3. Octaves and mod 2 equivalent notes
4. Just Temperament (why certain notes sound good together; psychoacoustics?)
5. Circle of Fifths (and the Wolf fifth)
6. Number of notes per octave (define ‘cent’)  
7. Equal Temperament (why Western cultures are so hyper)
8. Self-inharmonicity of a **single** real wire (Spinet to Concert Grand)
9. Stretch tuning

**Doing it!**

10. Pianos really ARE made to come apart (and go back together)  
11. Action (removal and regulation)  
12. Tuning: Pins, Unisons, Octaves, Stretch (where the ‘art’ comes in)  
13. What you CAN’T play with this tuning... (microtonal compositions)  

**(if there’s time and interest)**

14. Drum Tuning (demo with a floor tom)  
15. Relative pitches of your kit