Assign-ments	Dates	Lecture topic	Lab activities/assignment
	9/15	Logistics. Introduction to digital audio.	Lab1: Tone synthesis
x[註]	9/22	DTFT and convolution theorems	Lab2: FFT and very simple spectral analysis
x	9/29	Audio signal as a time-varying spectrum	Lab3: Spectrogram
x	10/6	Effects of windowing. Two interpretations of the STFT.	Lab4: Voice removal by band-reject filtering
x	10/13	Overlap-add for synthesis	Tutorial to HW1
r.r.	10/20	*Special topic*: Spectral estimation and Cramer-Rao bounds	
HW1	10/27	Music I: Pitch, Rhythm, and Timbre.	Lab5: FFT-based filtering and overlap-add
x	11/3	Music II: Sinusoidal analysis	Lab6: Find your pitch
x	11/10	Music III: Sinusoidal synthesis	Tutorial for HW2
r.r.	11/17	Music IV -- *Special topic*: My strong opinions on music information retrieval research	
HW2	11/24	Speech I: Linear prediction	Lab 7: Spectral envelope calculation
x	12/1	Speech II: Lattice structure	Tutorial for HW3
r.r.	12/8	Speech III -- *Special topic*: Introduction to phonetics, and why nobody should laugh at other people's accents	
HW3	12/15	*Special topic*: The case of MFCC – is it over-rated?	Tutorial for the final project: "Voice transformer"
--	12/22	*Special topic*: audio coding, psychoacoustics, and physiological foundations.	
--	12/29	*Special topic*: On scientific writing.	

Jan. 5, 2016: Final Project Presentation: "Voice Transformer"
Jan. 12: Final Exam

註：x = 小實作練習, r.r. = reading report.

HW1 = *Testing your uncertainty limit*
HW2 = *Time-warping and frequency shifting based on sinusoidal modeling*
HW3 = *Mapping your vowels onto the F1-F2 space*

Abbreviations:
FFT = Fast Fourier Transform.
DTFT = Discrete-time Four. Trans.
STFT = short-time Four. Trans.

Weight of grading:
x + r.r. = 15%
HW1 to HW3 = 15% each.
Final Project = 20%
Final Exam = 15%
Class participation = 3%