

6.300: Signal Processing

Retrospective

Final Exam

- on Friday, May 15
- from 9:00 a.m. to 12:00 p.m.
- in Walker Memorial (50-340)
- https://sigproc.mit.edu/spring26/q3_info

Please fill out a **subject evaluation** for this class at <https://registrar.mit.edu/classes-grades-evaluations/subject-evaluation> by Friday, May 15 at 9:00 a.m.

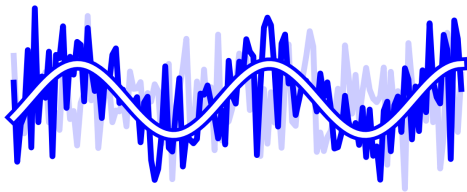
May 12, 2026

Retrospective

Signals convey **information**.

- audio: acoustic pressure as a function of time t
- images: intensity as a function of space x, y

Signal processing lets us distill and modify information.



By now, we hope that you're better able to...

- Make and analyze models of signals and systems.
- Apply mathematics and computation to solve problems.
- Understand real-world applications of signal processing.
- Do “~~matching problems.~~”

Lecture and Recitation Retrospective

Fourier series: Frequency representations for periodic signals

- 02/03: Fourier series for continuous-time signals
- 02/05: Using symmetry to simplify Fourier series calculations
- 02/10: Fourier series — now with complex exponentials!
- 02/12: Sampling and aliasing (i.e., discretizing time)
- 02/17: Presidents' Day
- 02/19: Fourier series for discrete-time signals

Fourier transforms: Frequency representations for all signals¹

- 02/24: Blizzard of 2026
- 02/26: Fourier transform for continuous-time signals
- 03/03: Quiz #1
- 03/05: Fourier transform for discrete-time signals

Systems: Analyzing and designing systems for processing signals

- 03/10: Systems (e.g., linearity, time-invariance, diff. equations)
- 03/12: Unit sample/impulse response and convolution
- 03/17: Frequency response and filtering
- 03/19: Communication systems (e.g., Fourier transform duality)

¹Not all, but a lot.

Lecture and Recitation Retrospective

Discrete Fourier transform: Good for numerical computation

- 03/31: Relations among discrete-time Fourier representations
- 04/02: Frequency resolution, circular convolution, impulse trains
- 04/07: Fast Fourier transform (FFT) algorithms
- 04/09: Short-time Fourier transform (i.e., sequence of transforms)
- 04/14: Speech processing (e.g., source-filter model of speech)
- 04/16: Quiz #2
- 04/21: Quiz #2 retrospective

Multidimensional signal processing

- 04/23: Two-dimensional Fourier transforms
- 04/28: Two-dimensional Fourier transforms and convolution
- 04/30: Image processing with the discrete Fourier transform
- 05/05: Data compression with the discrete cosine transform
- 05/07: Fourier transforms and magnetic resonance imaging
- 05/12: Synthetic aperture optics (i.e., Fourier optics)
- 05/15: Final examination

“Fourier transforms make the world go round.”

Subjects to Consider Next

6.3010	Signals, Systems, and Inference
6.7000	Discrete-Time Signal Processing
18.085	Computational Science and Engineering
18.103	Fourier Analysis

Circuits and Electronics

6.2000	Electrical Circuits: Modeling and Design
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Dynamical Systems and Control

2.004	Dynamics and Control II
6.3100/3102	Dynamical System Modeling and Control Design

Communications

6.7410/7411	Principles of Digital Communication
16.36/363	Communication Systems and Networks

Waves, Antennas, and Sensing

2.065/066	Acoustics and Sensing
6.2300/6300	Electromagnetics
6.7020	Adaptive Array Processing
8.03	Physics III

Subjects to Consider Next

Audio Processing

- 6.8620 Spoken Language Processing
- 21M.387/587 Fundamentals of Music Processing
- 21M.389/589 Studies in Music Technology and Computation

Imaging and Image Processing

- 2.71/710 Optics
- 6.4800 Biomedical Imaging with MRI
- 6.7010 Digital Image Processing
- 6.8370/8371 Digital and Computational Photography
- 6.8800/8801 Biomedical Signal and Image Processing
- 6.8810 Data Acquisition and Image Reconstruction in MRI
- 6.C27/C67 Computational Imaging: Physics and Algorithms

Probability, Statistics, Inference, and Machine Learning

- 6.3900 Introduction to Machine Learning
- 6.7800 Inference and Information
- 6.S899 Learning Time Series with Interventions
- 6.S955 Machine Learning for Signal Processing
- 18.065 Matrix Methods in Data Analysis,
Signal Processing, and Machine Learning

Subject Evaluation and Survey

We want to present course material in a way that encourages a deep **technical understanding** while also being **fun and engaging**. We need your help and your feedback in order to make that happen.

Please use the next **10 minutes** to fill out a subject evaluation and our end-of-semester survey.

Subject evaluation: Go to <https://registrar.mit.edu/classes-grades-evaluations/subject-evaluation>.

Survey: <https://sigproc.mit.edu/spring26/survey/>

Remember to **submit** your responses!

After you have finished, we will have an open discussion.