

Markov chains and algorithmic applications

Teachers: Olivier Lévêque (weeks 1-7)

Nicolas Macris (weeks 8-14)

TAs: Antoine Bodin

Alireza Modirshanechi

Adrien Vandembroucq

Lectures: prerecorded (on a SWITCHTube channel)

⊕ live sessions on Thursdays, 12:15 PM

(recap + quizzes)

Exercise sessions: on Fridays, 3:15 PM - 5:00 PM

in room INM 202 / on Zoom

(group B on campus this Friday)

Asking questions: various options:

- during lectures on Zoom: voice / chat

⚠ different Zoom links ⚠

⊕ answer the quizzes!

↘ - during exercise sessions: live interactions on campus
via Zoom / Piazza forum

- anytime: via the Piazza forum

(Thx in advance for labelling your questions)

Grading scheme:

- 4 graded homeworks (weeks 2, 4, 6, 8), 5% each
- mini-project 20% (weeks 9 → 14)
- final exam 60% (in January 2021)

References:

- Grimmett, Stirzaker
- Levin, Peres, Wilmer

Course plan:

I. Markov chains → ergodic theorem, convergence rate, cutoff phenomenon

II. Sampling → Metropolis's algorithm & variants, coupling from the past