Summary
The course follows the text of Norris and the polycopie (which will be distributed chapter by chapter).

Content
We will follow the book of Norris beginning with a recap of basic probability. Then we pass to the definition of Markov chains and the definition of irreducible. We analyze notions of recurrence and transience, particularly for irreducible chains. We then define positive recurrence and stationary distributions before proving the convergence theorem for aperiodic positive recurrent markov chains. The last two topics are continuous times Markov Chains and renewal theorems.

Keywords

Learning Prerequisites
Required courses
Second year probability.

Learning Outcomes
By the end of the course, the student must be able to:
- Compute stationary distributions
- Classify communicating classes
- Solve hitting probabilities
- Use the renewal theorem
- Check irreducibility

Transversal skills
- Demonstrate the capacity for critical thinking

Teaching methods
Lectures followed by exercise sessions

Assessment methods
The greater part of the note will be determined by the final (written) exam. There will also be small contribution by a "midterm" exam and by exercises.

 Supervision
 Office hours  No
 Assistants  No

 Resources
 Bibliography
 Markov Chains by J. Norris is recommended but not obligatory.

 Ressources en bibliothèque
 • Markov Chains / Norris

 Notes/Handbook
 Notes will be made available