A Brief Introduction to Analysis on Graphs in a Global Learning Environment

Course Description

In this course, we learn basic concepts in analysis on graphs, such as the graph Laplacian, the Dirichlet problem, Cheeger's inequality, the discrete Poincaré inequality, and the isoperimetric inequality, among other topics.

Regarding the methodology, students work collaboratively with students from some universities in Argentina. As a final activity, students will prepare a poster on a topic discussed in the course to be presented at a local event.

This course is an excellent opportunity to have a friendly international experience from our own campus, enjoy thinking about mathematical problems with others, strengthen our global perspective, and meet new friends in a diverse, multicultural, and multilingual environment. Any level of Spanish is welcome, including no prior knowledge of the language.

Prerequisite(s): C or better in MAT 2240 or MAT 2250, and C or better in MAT 3140.
Course capacity: 12 students.

Bibliography

1. Grigor'yan, Alexander, *Introduction to analysis on graphs*, University Lecture Series, **71**, American Mathematical Society, Providence, RI, 2018