

## Special Mathematics Lecture (Graph Theory)

<b>Registration Code</b>	0053621	<b>Credits</b>	2.0
<b>Course Category</b>	Science Basic		
<b>Term (Semester) / Day / Period</b>	G-II (1st year, Spring Semester) / Wed. / 6 (18:15~19:45)		
<b>Instructor</b>	RICHARD Serge		
<b>Target Schools (Programs)</b>	Hu(J)·La(S)·Ec(S)·Sc(P·C·B)·En(P·C·Au)·Ag(B)		

**•Goals and Objectives of the Course**

Graphs are playing an essential role in many fields, as for example in computer science, in optimization and in algorithmic complexity. Studying the abstract theory of graphs provides the tools for dealing with very diverse questions and with numerous applications.

During this course we shall study the abstract theory of finite graphs, and see extensions to infinite graphs. Applications will be considered according to the interest and to the motivation of the students.

**•Course Prerequisites**

Basic knowledge on calculus and linear algebra, as provided in Calculus I & II and in Linear algebra I & II. Motivated 1<sup>st</sup> year students can also attend without these prerequisites but after a discussion with the instructor.

**•Course Contents/Plan (tentative)**

Basics

Structures and representations

Trees and spanning trees

Connectivity and planarity

Graph colorings

Flows

Infinite graphs

**•Course Evaluation Methods**

The final grade will be based on the active participation during the lectures and on some written reports. Computer implementations of some exercises will accepted as reports.

**•Notice for Students**

It is expected that the students will show a certain maturity in studying independently and in choosing some exercises and problems to solve. Study sessions will be organized on a weekly basis.

This course in an optional subject which does not count towards the number of credits required for graduation in any program at Nagoya University.

<b>Textbook</b>	Free reference books will be provided during the lectures
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<b>Reference website</b>	<a href="http://www.math.nagoya-u.ac.jp/~richard/SMLspring2020.html">http://www.math.nagoya-u.ac.jp/~richard/SMLspring2020.html</a>
<b>Message</b>	