

M2 Complex System (M2SC) program structure

for M2 Informatique Fondamentale (M2IF) students

2015/2016

COURSES:

Semester 1:

Mandatory courses:

- Introduction to Statistical Physics (20h + 10h TD), 6 ECTS
- Complex Networks (**CS CR 15 CS course) (24h + 8h TD), 4 ECTS
- Dynamical processes and networks (20h + 8h TD), 4 ECTS

Research courses:

- Data analysis and processing for networks (*CR 16) (24h), 4 ECTS
- Probabilistic methods, with Applications to Graphs (*CR 17) (24h), 4 ECTS
- Network Algorithms for Molecular Biology (*CR 03) (24h), 4 ECTS
- Modeling in biology and medicine (20h), 4 ECTS
- Modelling of Social Systems (20h), 4 ECTS

Research school:

- Machine learning technics in data analysis, 2 ECTS

Semester 2:

Internship:

- 20 weeks, 30 ECTS

CONDITIONS:

A student has to collect 30 ECTS in each semester (summing up to 60 ECTS for the whole year). During the 1st semester a student has to take at least

- a) 16 ECTS from the M2IF program (courses recognised by both programs like CR15, CR16, CR17, and CR03 are included)
- b) 14 ECTS from the M2SC program (mandatory courses included)
- c) 2 research schools as well, one provided by the M2SC program and one by the M2IF. The 2x2ECTS for the research schools are counted in the (a) 16 ECTS hat.

* Courses recognised by the M2IF master program (http://www.ens-lyon.fr/DI/?page_id=16&lang=en)

EXAMPLE:

A typical trajectory for an M2IF student following the M2SC program:

M2SC courses (14 ECTS):

- Introduction to Statistical Physics (mandatory) - 6 ECTS
- Dynamical processes and networks (mandatory) - 4 ECTS
- One of the modelling courses - 4 ECTS

M2IF courses (16 ECTS):

- Complex Networks (mandatory) - 4 ECTS
- Two research courses from CR16, CR17, and CR03 or from the M2IF offer - 2 x 4 ECTS
- Two research schools (one in M2SC and one in M2IF) - 2 x 2 ECTS

Note that since M2SC courses are mostly given on Tuesdays and Thursdays students have time to follow other research courses at M2IF or facultative language courses on other days.

Actual informations are summarised at: http://www.ixxi.fr/enseignement/master_systemes_complexes

CONTACTS:

- Márton Karsai (co-responsible of M2SC program) - marton.karsai@ens-lyon.fr
- Anne Benoit (responsible of M2IF program) - anne.benoit@ens-lyon.fr