

- Faculté des sciences
- www.unine.ch/sciences

Concurrency: Foundations and Algorithms (3IN2033)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en informatique	Cours: 2 ph Exercice: 2 ph	écrit: 2 h	5

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Printemps

Equipe enseignante:

Prof. Pascal Felber

Objectifs:

Students who take this course will learn the basics of concurrent programming on multicore systems.

Contenu:

This course covers the foundations of concurrent systems and multiprocessor synchronization. Students who take this course will learn the basics of multicore programming, the new paradigm of computer science.

The main topics covered in the course include:

- Introduction
- Mutual Exclusion
- Concurrent Objects and Consistency
- Foundations of Shared Memory
- Synchronization Operations
- Universality
- Spin Locks and Contention
- Linked Lists
- Queues, Stacks
- Hash Tables
- Futures, Scheduling, and Work Distribution
- Barriers
- Transactional Memory

The course will be complemented by practical, hands-on exercises on multi-core computers.

Forme de l'évaluation:

Ecrit de 120 minutes. En cas d'échec, un examen oral de rattrapage de 30 minutes pourra avoir lieu.

Documentation:

<http://ilias.unibe.ch>

Pré-requis:

Programmation I et II

Forme de l'enseignement:

Cours+exercices