

- Faculté des sciences
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Concurrency: Multi-core Programming and Data Processing (3IN2052)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en informatique	Cours: 2 ph Exercice: 2 ph	Voir ci-dessous	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:

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.

Contenu:

The main topics covered in the course include foundations of concurrency: concurrent objects and consistency, foundations of shared memory, the relative power of synchronization operations, universality of consensus; and practical algorithms: mutual exclusion, spin locks and contention, lock-free and wait-free algorithms, concurrent data structures (linked lists, skip lists, queues, stacks, hash tables), 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:

Written (120 minutes), repeat exam is oral (30 minutes)

Documentation:

<http://ilias.unibe.ch>

Pré-requis:

Basic programming knowledge in Java

Forme de l'enseignement:

Lectures+labs