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

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

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

Forme de l'évaluation

Written exam (90 minutes)

Modalités de rattrapage

Written exam (90 minutes)

Documentation

http://ilias.unibe.ch

Pré-requis

Basic programming knowledge in Java

Forme de l'enseignement

Lectures + labs

Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Design concurrent algorithms
- Reproduce experiments
- Solve algorithmic problems
- Develop multi-core programs

Compétences transférables

- Formulate problems
- Demonstrate solutions
- Conceptualise algorithms