UCLouvain

lsinf1121

2018

Algorithmics and data structures

5 credits	30.0 h + 30.0 h	Q1

Teacher(s)	Schaus Pierre ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	*The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	**Examen on computer using Inginious https://inginious.info.ucl.ac.be.** **A mi-term quizz could be organized during the smart-week but will effectively count in the final grade only if it is favorable.**
Teaching methods	The active pedagogy method followed in this course is inspired by flipped classrooms. There are six two-week modules. Each module includes an introductory course on the subject, theoretical exercises to prepare, chapters of the reference book to read, a session to correct exercises in the middle of the model with the TA, work on inginious to realize (Java programs) and finally a restructuring course at the end of the module. One of the essential components of this pedagogy is **self-learning**. The success of the learning process thus presupposes a significant involvement of each student. The actual learning remains the responsibility of each student. To pass the exam it is highly recommended that **the student programs regularly**.
Content	• Computational complexity, • Trees, binary search trees, • Balanced trees, • Dictionaries and hash tables, • Priority queues and heaps • Graphs, • Text processing (pattern matching, compression algorithms)
Inline resources	https://moodleucl.uclouvain.be/course/view.php?id=7682 https://lsinf1121.readthedocs.io
Bibliography	Required Textbook: Algorithms, 4th Edition by Robert Sedgewick and Kevin Wayne, Addison-Wesley Professional. ISBN-13: 978-0321573513 ISBN-10: 032157351X Exercices and documents https://lsinf1121.readthedocs.io Communication with students using moodle http://moodleucl.uclouvain.be/course/view.php?id=7682
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Mathematical Engineering	MAP2M	5		
Bachelor in Mathematics	MATH1BA	5		
Master [120] in data Science: Statistic	DATS2M	5		
Minor in Statistics and data sciences	LSTAT100I	5		
Minor in Engineering Sciences: Computer Sciences	LSINF100I	5		
Minor in Computer Sciences	LINFO100I	5		
	LSTAT100P	5		