

# Formal Concept Analysis

## KMI/FKA

### Summer Semester 2015

## Program

The course on Formal Concept Analysis is thought to get the students familiar with the topic of FCA, its origins, its applications, the results that have been achieved and the algorithms that have been developed. In order to provide students with a powerful tool for future development or application, particular attention will be devoted to the mathematical notions arising inside FCA, with the aim of allowing a deep understanding of the topic. The language of the course will be prevalently English.

The period of the course will be the first part of the Summer Semester, since 19.2.2015 to 14.5.2015. Lessons will take place every Thursday from 15:00 to 16:30 in room 5008 at the Faculty of Sciences of the Palacký University in Olomouc.

The course is mainly based on the text notes by Prof. R. Bělohávek and will be held with the help of his slides. Both items can be found in the personal webpage of Prof. R. Bělohávek at:

<http://belohlavek.inf.upol.cz/vyuka/fka-2013-14.html>

Further bibliography can be found in the course webpage of the STAG system.

The expected schedule of the course is the following:

- 19.2.2015:** Introduction to FCA, Formal Contexts, Concept Lattices;
- 26.2.2015:** Galois connections, Closure operators, Extents and Intents, Representation Theorem for Galois connections;
- 5.3.2015:** Duality between extents and intents, Hierarchical structure of concept lattices, the Main Theorem of concept lattices;

**12.3.2015:** Clarified and reduced formal contexts, Arrow relations;  
**19.3.2015:** Algorithms for computing concept lattices;  
**26.3.2015:** Many-valued contexts and conceptual scaling;  
**2.4.2015:** Attribute Implications (AIs): introduction and definitions;  
**9.4.2015:** Armstrong Rules;  
**16.4.2015:** Models;  
**23.4.2015:** Non-redundant bases;  
**30.4.2014:** Pseudo-intents, Guigues-Duquenne basis, association rules: support and confidence;  
**7.5.2015:** Association rules: frequent itemsets;

## **e-mail**

- [radim.belohlavek@acm.org](mailto:radim.belohlavek@acm.org)
- [marco.cerami@upol.cz](mailto:marco.cerami@upol.cz)