Fortgeschrittene funktionale Programmierung
LVA 185.A05, VU 2.0, ECTS 3.0
SS 2015
– Vorbesprechung –
(Stand: 04.03.2015)

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Course Objectives

...advanced concepts and principles of functional programming, applications and implementation issues of functional programming languages.

- Functional data structures and algorithms
- Combinator libraries and embedded domain-specific languages
- Programming with streams, programming with monads
- Testing and verification, equational reasoning
- Monadic and combinator parsing, pretty printing
- Functional vs. logical programming
- Parallelism in functional languages
- Functional reactive systems
- ...
Goals

- Overview and insight into advanced concepts of functional programming and their application in practice
- Profound understanding of the foundations of functional programming
- Insight in advantages and limitations of a purely functional style of programming
Accounts for

- Elective course (Wahlfach) within the Master program 066 937 Software Engineering & Internet Computing (3.0 ECTS)
- Elective course (Wahlfach) within the Master program 066 931 Computational Intelligence (3.0 ECTS)
- Elective course (Wahlfach) within the Master program 066 950 Informatikdidaktik (3.0 ECTS)
- Examination course (Prüfungsfach) towards the Erasmus-Mundus Master program 066 011 DDP Computational Logic (Erasmus-Mundus) (3.0 ECTS)
Prerequisites

- Completed Bachelor program
- Basic knowledge of the functional programming style as imparted e.g. in the course LVA 185.A03 Funktionale Programmierung, VU 2.0, ECTS 3.0
Organization and Assessment

- Lectures (usually once a week)
- (Programming) assignments to be solved by teams of 2 (or 3) students (usually once a week)
- Final oral examination (assignments and course material)
Important Web Resources

- Haskell Homepage: www.haskell.org/
- Haskell Tutorial: www.haskell.org/tutorial/
- Hugs Interpreter: www.haskell.org/hugs
Recommended Reading: Basics


6. ...
Recommended Reading: Advanced


7. ...
Specific reading recommendations will be provided for each chapter on-the-fly of the course.
Registration, Accounts, and Passwords

- **Registration:**
  - Via the electronic registration management system of AB E185.1 on or before 13 March 2015
  - For further information visit the homepage of the course: www.complang.tuwien.ac.at/knoop/ffp185A05_ss2015.html

- **Account creation** (including account name and password):
  - Automatically in the course of registration.

- **Cancelling of registrations:**
  - On or before 31 March 2015; also via the electronic registration management system
Lectures, Assignments

- **Lectures (block style):** usually each Thursday from 4.15 p.m. to 5.45 p.m., seminar room on the ground floor of the Institutsgebäude at Argentinierstr. 8; first course meeting today on 5 March 2015.

- **Assignments:** Usually each Tuesday; starting on 10 March 2015; in total about 8 assignments.

- **Submissions:** Automatically collected and checked a week after publication at 3.00 p.m.; must be stored in the home directory of your group account.

- **Second submission after bug fixing:** Another week later.

- **Last but not least:** Assignments and lecture slides available on the homepage of the course.
Usage of Computers

- **Server:** g0.complang.tuwien.ac.at
- **Terminals for course usage:** Lab on the ground floor of the Institutsgebäude at Argentinierstr. 8
- **Usage of other computers** is encouraged (e.g. at home)
- **Required software:** Hugs (available free of charge)
- **Solutions of assignments** must be delivered on server g0.complang.tuwien.ac.at
Assessment

- Based on final examination and grades on assignments
- Positive grade only, if all parts are positive
- Final oral examination
- Points (pts) for solutions: max. 100 pts/assignment, about 8 assignments in total
- Minimum 50% in total of the points for an positive overall grade on assignments
- Half of the points for second deliveries of assignments
Information Sources / Questions and Problems

- **Course homepage:**
  www.complang.tuwien.ac.at/knoop/ffp185A05_ss2015.html

- **E-mail:** knoop@complang.tuwien.ac.at

- **Further team member:**
  Ulrich Neumerkel
...this term:

- Prof. Dr. Andreas Frank
  Institut für Geoinformation und Kartographie

LVA 127.008 VU 2.0, ECTS 3.0
Haskell-Praxis: Programmieren mit der Funktionalen Programmiersprache Haskell
Tue, 3.00 p.m. to 4.30 p.m.
Seminar room 127, 3rd floor, Gußhausenstr. 25-29
(The course will be held in English.)
Interested in Studying Abroad?

The Erasmus/LLP-Programme of the European Union offers a plenty of exciting opportunities, e.g.

- Universidade do Minho, Braga, Portugal
- Technical University of Lissabon, Portugal
- The University of Copenhagen, Denmark
- Universität Halle-Wittenberg, Germany
- Universität Paderborn, Germany
- Universidad Politècnica de València, Spain
- ...

For further information please visit: http://www.complang.tuwien.ac.at/knoop/erasmus
Ich wünsche Ihnen

...viel Erfolg bei dieser Lehrveranstaltung und dass Sie auch über die unmittelbare Veranstaltung hinaus davon profitieren!

Nicht zuletzt:
Vorlesung und Übung leben mit Ihnen! Ihre Rückmeldungen, Anregungen, Verbesserungsvorschläge sind willkommen! Natürlich auch Hinweise, wenn Ihnen etwas gut gefallen hat!