Course Form for PKU Summer School International 2019

Course Title	Introduction to Functional Programming
	函数式语言介绍
Teacher	WANG Meng
First day of classes	July 1, 2019
Last day of classes	July 12, 2019
Course Credit	3 credits

Course Description

Objective

This unit provides an introduction to functional programming, assuming no prior exposure to the paradigm. The aim is to introduce types and functions. Important principles include evaluation order, function composition, lambda-abstraction, higher-order functions, and function composition. Concrete topics encountered in the course include:

- values, types and functions
- compound data types (lists, tuples, and user-defined types)
- higher-order functions
- using abstraction to avoid repetitive programming
- recursion and recursive data types
- efficient and inefficient programs
- input-output
- verification with the help of testing

Pre-requisites /Target audience

Basic programming knowledge.

Proceeding of the Course

None.

Assignments (essay or other forms)

In class programming assignments. Group projects.

Evaluation Details

Text Books and Reading Materials

Miran Lipovaca. Learn you a Haskell for great good. ISBN 9781593272838. http://learnyouahaskell.com/

Richard Bird. Thinking functionally with Haskell. ISBN: 9781107452640.

Academic Integrity (If necessary)

CLASS SCHEDULE
(Subject to adjustment)

Session 1：*Introduction*	Date:7/1 AM
Session 2：*Datatypes*	Date:7/2 AM
Session 3：*Recursion*	Date:7/3 AM
Session 4：*Lab I*	Date:7/3 PM
Session 5：*Input/Output*	Date:7/4 AM
Session 6：*Testing*	Date:7/5 AM
Session 7：*Lab II*	Date:7/5 PM
Session 8：*Higher-Order Functions*	Date:7/8 AM
Session 9：*Type Classes*	Date:7/9 AM
Session 10：*Lab III*	Date:7/9 PM
Session 6： *Data Structures*	Date:7/10 AM
Session 12：*Class Presentation I*	Date:7/10 PM
Session 13：*FP in other languages*	Date:7/11 AM
Session 14：*Class Presentation II*	Date:7/11 PM
Session 15：*Final Exam*	Date:7/12 AM