

Module title Distributed Computing				
Module code tba	Level Master (MSc.)	Hours per week 4	ECTS credits 5	Duration 1 semester
Module instructor Prof. Dr. Jobst	Lecture type Lectures and assignments Practical courses	Prerequisite(s) Object-oriented programming, databases, web technology and internet protocols		Grading Exam at the end of the semester
Objectives				
<ul style="list-style-type: none"> • Students understand the principles of functional programming and can reason about their benefit for distributed computing • Students recognize and can apply design patterns and know how to use state of the art libraries and API • Students can design and implement small functional reactive programs in a given object-oriented, functional programming language • Students know how to access and manipulate distributed data and can apply exemplary data algorithms • Students can reason about the deployment of reactive applications 				
Content				
<ul style="list-style-type: none"> • Functional Programming Principles and Design • Actor-based Systems • Reactive Programming and the Reactive Manifesto • Distributed Data and Exemplary Data Algorithms on Distributed Data (e.g. Map-Reduce) • Deployment of Distributed Applications 				
Textbook/teaching material				
<ul style="list-style-type: none"> • Odersky, Martin; Spoon, Lex and Venners, Bill (2011): Programming in Scala, 2nd ed., Walnut Creek: Artima Press • Allen, Jamie (2013): Effective Akka, Sebastopol: O'Reilly • Parsian, Mahmoud (2015): Data Algorithms. Beijing et al.: O'Reilly • Various online documentation of programming languages and frameworks as stated in the course platform 				

Note: this is not the official course descriptor according to the "Studien- und Prüfungsordnung" (SPO)