Summer Semester 2015
Introduction to Computational Physics (UKWR2)

Lecturers: Rainer Spurzem, Ralf Klessen

Location Wed 9:15-10:45 Phil12 GHs,
Fri 11:15-12:00 INF 308, KIP, Hörsaal 2
The Lecture will be offered in **English Language**. There will be one tutorial in German and one in English

Lecture Time Plan
(subject to change depending on progress of lecture)

Wed 9.15	Fri 11.15	Tutorial Sheet	Spurzem	Klessen	Chapter-Number: Topic
15.4	17.4.	-	x		Introduction, 1-3: Practical Exercises/Mathematica
22.4	24.4.	1	x		4: Ord. Diff. Eqs. I: Two-Body Problem, Elementary Euler
29.4.	—-	2	x		6: Ord. Diff. Eqs. II: Runge-Kutta (2,4,higher) and more
6.5.	8.5.	3	x		6: Ord. Diff. Eqs. III: Advanced Numerov Quantum Mechanics
13.5	15.5.	4	x		6. Ord. Diff. Eqs. IV: Lorenz-Attractor, Nonl. Dynamics
20.5	22.5.	5	x		6. Ord. Diff. Eqs. V: Lorenz-Attractor, Nonl. Dynamics
27.5	29.5.	6	x		7. Discrete Systems: logistic map, bifurcation diagram, chaos
3.6	5.6.	7	x		8,9: Random Numbers, Monte Carlo methods
10.6	12.6.	8	x		9: Monte Carlo methods, Ising Model I
17.6	19.6.	9	x		9: Monte Carlo methods, Ising Model II
24.6	26.6.	10		x	5. Linear Algebra I / Matrices / Eigenvalues
1.7.	3.7.	11		x	5. Linear Algebra II / Householder / QR-QM, ...
8.7.	10.7.	12		x	5. Linear Algebra III quantum mechanics, Schrödinger-Eq.
15.7.	17.7.	-		x	Outlook
22.7.	24.7.	-			Exam Week (no lecture)

First Tutorial Sheet issued: Wed April 15, to be turned in Fri April 24.

Begin of Tutorials: Fri April 17 / Mon April 20

Due to public vacation there will be no tutorial on Friday May 1 and Monday May 25

Public Holidays also on Thursday May 14 and Thursday June 4. It is possible that the lectures on May 15 and June 5 may be cancelled, and the lectures May 22/June 12 will be a bit longer as compensation.

Further Informations

http://wwwstaff.ari.uni-heidelberg.de/mitarbeiter/spurzem/lehre/SS15/compphys/compphys.php.en

Lecture Manuscript of 2008/2009 (Our current lecture in 2015 will sometimes deviate from the manuscript, in such case additional material will be distributed): http://www.ita.uni-heidelberg.de/research/klessen/people/klessen/lectures/2009-A/CompPhys/Script-Computational-Physics.pdf

Tutorials (Übungen)

Friday, 13:15 - 16:00, Im Neuenheimer Feld 227, CIP Pool KIP 1.401
Monday, 13:15 - 16:00, Im Neuenheimer Feld 227, CIP Pool KIP 1.401

The assignments (Übungsaufgaben) can be done by a single person or a group of two or three persons.

Assignments are prepared in the tutorials hours, with help of tutors and lecturers (sometimes).

Every week, usually Tuesday or Wednesday afternoon, a new assignment sheet (Übungsblatt) will be published in the Moodle webpage of the lecture. Deadline to hand in the assignments (electronically) is Friday noon, after 9-10 days.

The results of the assignments will be discussed in the tutorials and if necessary also in the lecture.

Your tutors

Taras Panamarev, taras@ari.uni-heidelberg.de (English)
Fabian Klein fklein@ari.uni-heidelberg.de (German, English)