

Summer Semester 2021

Introduction to Computational Physics (UKWR2)

Lecturers: Ralf Klessen, Rainer Spurzem

zoom Online Lecture, Wed 9:15-11:00, Fri 11:15-12:00

zoom Online Tutorials, Mon/Fri 13:15 - 16:00

Participants can choose Monday or Friday tutorial.

Lecture and Tutorials will be offered in **English Language**.

Lecture Time Plan – updated June 7

Tutorial will appear Wednesday as given in the list - return is usually Friday of the following week. (All data are subject to change depending on progress of lecture)

Wed 9.15	Fri 11.15	Tutorial Number	Spurzem	Klessen	Chapter-Number: Topic
14.4	16.4.	1		x	Introduction, 1-3: Practical Exercises/Mathematica
21.4	23.4.	2		x	4: Ord. Diff. Eqs. I: Two-Body, Euler Method
28.4.	30.4.	3		x	6: Ord. Diff. Eqs. II: Runge-Kutta (2,4,higher)...
5.5.	7.5.	4		x	5. Linear Algebra I / Matrices / Eigenvalues
12.5.	14.5.	5		x	5. Linear Algebra II / Householder / QR-QM, ...
19.5.	21.5.	6		x	5. Linear Algebra III quant. mech., Schrödinger-Eq.
26.5.	28.5.	-		x	5. Linear Algebra IV, continued
2.6.	4.6.	7	x		4.2, 4.3: Ord. Diff. Eqs. III: Population Dynamics I
9.6.	11.6.	8	x		4.3, * Ord. Diff. Eqs. IV: Pop. Dyn., Lorenz-Attractor
16.6.	18.6.	9	x		* Ord. Diff. Eqs. V: Lorenz-Attractor, Nonl. Dynamics
23.6.	25.6.	10	x		8: Random Numbers/Monte Carlo I
30.6.	2.7.	11	x		9: Monte Carlo II/Ising Model I
7.7.	9.7.	12	x		9: Ising Model II
14.7.	16.7.	-	x		Preparation Week (lecture?) Outlook
21.7.	23.7.	-			Exam Week (no lecture)

*For the Lorenz dynamical system and attractor separate textbook material will be distributed. The Lorenz dynamical system is briefly mentioned in our old script in Chapter 7.3; also we will touch in the lecture - during Lorenz section - discrete maps (Chapters 7.2 and 7.3), but only very briefly and more in passing, unfortunately, due to lack of time.

Relevant Public Holidays: May 1 (Sat), May 13 (Thu), May 24 (Mon), June 3 (Thu)

First Tutorial Sheet issued: Wed April 14, to be turned in Fri April 23.

Begin of Tutorials: Fri April 16 / Mon April 19.

Due to public vacation there will be no tutorial on Monday May 24.