



Register before October 3

KSETA Topical Courses, October 10 – 21, 2022

Please see information for the room in the last column

Scientific writing (better) all	Angela Althen (Sprachenzentrum)	10.10.22 12.10.22	9:00 - 16:45 Uhr 9:00 - 16:45 Uhr	room 10/1, bldg. 30.23	Max. 15 places
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This workshop focuses on the language you use when writing scientific papers. Our aim is to improve your writing by talking about conventions in the field, producing your own texts and discussing further questions which arise whilst writing. We start by briefly discussing the content of each section of a paper (Abstract, Introduction, Methods, Results, Discussion). As a group we will develop guidelines that can be used when writing your own text. Next, we will look at authentic sample texts to talk about conventions of style and possibly grammar. We will pay special attention to language patterns in specific subject areas as these tend to vary. We will use another set of texts to practice editing. Then, you will be asked to apply your skills and write short texts of your own, e.g. a project summary and a critical review. You will receive feedback on your writing style and use of language. As questions related to language use, punctuation and grammar arise, we will discuss them. By the end of the course, you will improve your ability to write about your research and comment on other writers' research in English. You will sharpen your editing skills and develop a sense for appropriate style in a scientific text.

Symmetry principles of Particle Physics for experimentalists (broader)	Ulrich Nierste (TTP)	11.10.22 13.10.22	13:30 - 16:45 h 13:30 - 16:45 h	room 10/1, bldg. 30.23
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The fundamental interactions of particle physics obey symmetry principles which dramatically constrain the structure of allowed interactions. The KSETA "BROADER" course provides a basic introduction into the theoretical description of symmetries in terms of Lie groups, and their representations. The course covers the groups SU(N) and SO(N) and their role in the Standard Model and illustrates how symmetry considerations may guide us to theories superseding the Standard Model, such as grand unified theories.

Python for Scientists (intense course) (better) all	Maurice Maurer Training-scientists.de	11.10.22 14.10.22 19.10.22	9:00 - 12:15 h 9:00 - 12:15 h 9:00 - 12:15 h	via zoom
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The course currently consists of 6 modules. In total, the participants should plan to invest **20 to 35 hours!** Every module contains:

- a 60-90 minute video lecture on moodle.training-scientists.de that the participants can watch when it suits them
- exercises for the participants to apply what they have learned
- 3 live Zoom tutorials to answer questions

In total, the participants should plan to invest 20 to 35 hours for all parts.

Max. 12 places

The content of the six modules is as follows:

1. Intro, Anaconda, Jupyter, Syntax, PEP8, First Examples
2. Data analysis, Big Data, Numpy, Pandas
3. Interpolation, Fitting, Filtering, Data Analysis Example
4. Visualization, Advanced Plotting, Matplotlib, String Formatting
5. GIT, File Creation, Generators, Dask Parallelization
6. Video Creation, Symbolic Calculation, Virtual Environments, Complex Fitting

<https://www.training-scientists.de/python-for-scientists-and-engineers/>

Introduction to QCD and quantum corrections (deeper) theoretician	Gudrun Heinrich (ITP)	17.10.22 18.10.22	9:00 - 12:15 h 9:00 - 12:15 h	room 10/1, bldg. 30.23
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The course will cover advanced numerical integration techniques which are specifically designed for perturbative calculations of Feynman amplitudes. It will include sector decomposition in order to handle overlapping divergences, Quasi Monte Carlo Integration and other specialized approaches.

Projectmanagement (better) all	Udo Erdmann (tiber)	17.10.22 21.10.22	13:30 - 16:45 h 14:30 - 17:45 h	via zoom
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As a graduating scientist or engineer, you are planning a next career step within industry. If this is the case, you definitely have to cope with management responsibilities. Therefore, skills in management and leadership will be expected. Planning to open an own business or start up requires knowledge in managing a company as well. In both cases the needed skills can be divided in three



classes: corporate management, project management, technology and innovation management. Based on practical, handy examples the three aforementioned classes will be introduced (approximately 2 hours per class). After this one day introduction you will have a good overview of what will be expected of you outside of science. Additionally to that you will be empowered to make a better decision for the next career step based on your existing skills. You will be supplied with a better picture of the industrial and business world, and you will get hints which of your skills should be more sharpened and which skills should

Room changed!

Introduction to quantum computing (broader) all	Ioan Pop (IQMT)	20.10.22	9:00 - 12:15 h	bldg. 20.30, R 0.019 room 045/046 Bldg. 50.41
		21.10.22	9:00 - 12:15 h	

The idea of building a quantum computer has been around for quite some time now. Quantum computers would have a huge impact on the efficiency of computers, which in turn would result in never-before-seen changes in many fields like simulations or encryption. In this course, we will review the fundamentals of this field.

KSETA Topical Courses, October 25 – 27, 2022

Course will take place via zoom

Scientific presentation (better) all	E. Magyarosi	25.10.22	9:00 - 16:45 Uhr	via zoom
		27.10.22	9:00 - 16:45 Uhr	

This is an activity-based workshop with plenty of opportunities for you to practice, discuss, give and receive feedback. It is imperative that you attend the full session. The Scientific Presentation workshop aims to provide you with the necessary skills to successfully and dynamically present the relevance of your work and the core message of your talk. It imparts necessary skills to successfully and appealingly present scientific papers at conferences, and to be able to confidently defend research results during discussions. It also addresses non-verbal communications such as appropriate and fluid body language; the ability to listen and react generously; and to integrate focusing techniques which magnify the power of the speaker.