Consulting Services

HPC.NRW

On behalf of HPC.NRW a **state-wide helpdesk** has been established.

Topics handled by this helpdesk are the following ones:

- **General support**
- **Courses and workshops**
- **Method**-oriented, **business**-oriented and **subject**-oriented consulting

Everyone in NRW related to HPC topics has the right to use the support.

The service is **for free;** no fees have to be paid.

Contact

HPC.NRW

For HPC user in NRW without own HPC institution, there exist **two ways** of creating a **support request** in the HPC.NRW network:

1. If the user already uses the infrastructure of a **certain HPC location**, he should use the **support network** belonging to this institution.

2. If the user does not use an HPC system of an HPC.NRW partner yet, he could send his request to **helpdesk@hpc.nrw**.

   This is the official support e-mail-address of HPC.NRW and the sender will receive an answer after 72 hours at latest.

Contact - local support

It is also possible to contact the local support in either Aachen, Cologne or Paderborn.

Contact details could be found on:

https://hpc.dh.nrw/de/ziele/massnahmen/allgemein-1-1-3-1

Standort	Kontakt	Support-Webseite
RWTH Aachen University	servicedesk@itc.rwth-aachen.de	www.itc.rwth-aachen.de/hpc-projects

Local support - Aachen

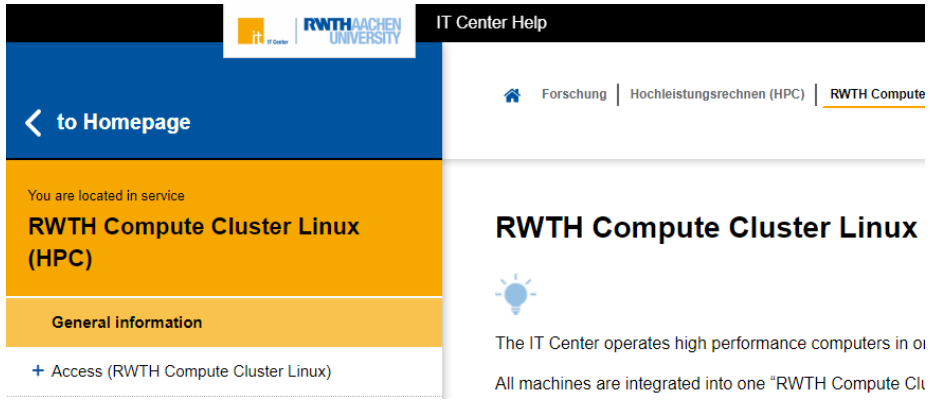
Aachen is known for its expertise regarding **engineering**.

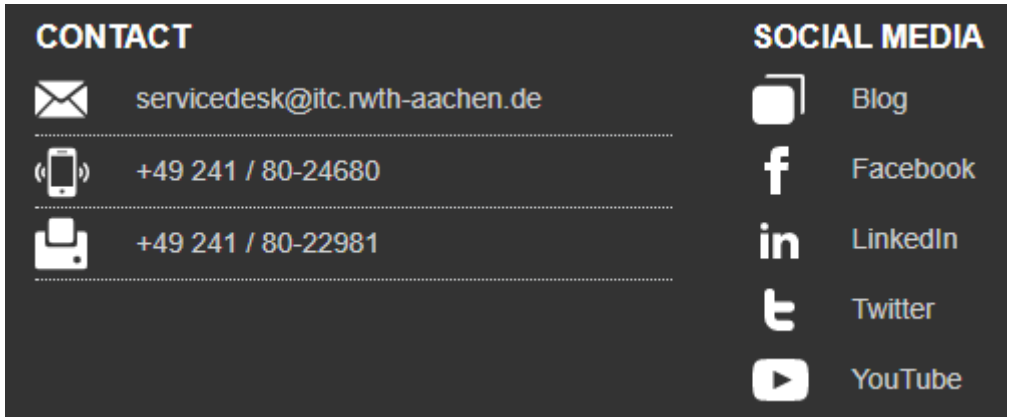
Local support could be reached via:

servicedesk@itc.rwth-aachen.de

Local support website is:

https://help.itc.rwth-aachen.de/service/rhr4fjjutttf/





Local support - Cologne

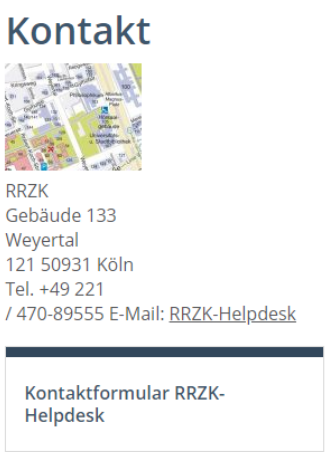
Cologne is known for its expertise regarding **life science**.

Local support could be reached via:

hpc-mgr@uni-koeln.de

Local support website is:

rrzk.uni-koeln.de/hpc-projekte/hpc



Local support - Paderborn

HPC.NRW

Paderborn is known for its expertise regarding **chemistry, physics, mathematics and computer science**.

Local support could be reached via:

Pc2-support@uni-paderborn.de

Local support website is:

https://pc2.uni-paderborn.de/go/access

Contact

Postal Address	Universität Paderborn *Paderborn Center for Parallel Computing* Warburger Str. 100 33098 Paderborn Germany
Telephone	+49-5251-60 1735
Telefax:	+49-5251-60 1714
Location	University Campus, building O, Pohlweg 51
Website	https://pc2.uni-paderborn.de
E-mail	pc2-info(at)uni-paderborn(dot)de for administrative purposes pc2-support(at)uni-paderborn(dot)de for technical purposes pc2-cert(at)uni-paderborn(dot)de for security purposes

General support

HPC.NRW

The general support includes all **high level HPC questions**:

- Availability of HPC resources
- Application of computing time
- Small issues regarding HPC calculations
- General questions

Courses and workshops – HPC Wiki

HPC.NRW

An important part of HPC.NRW is the functional education of HPC user →

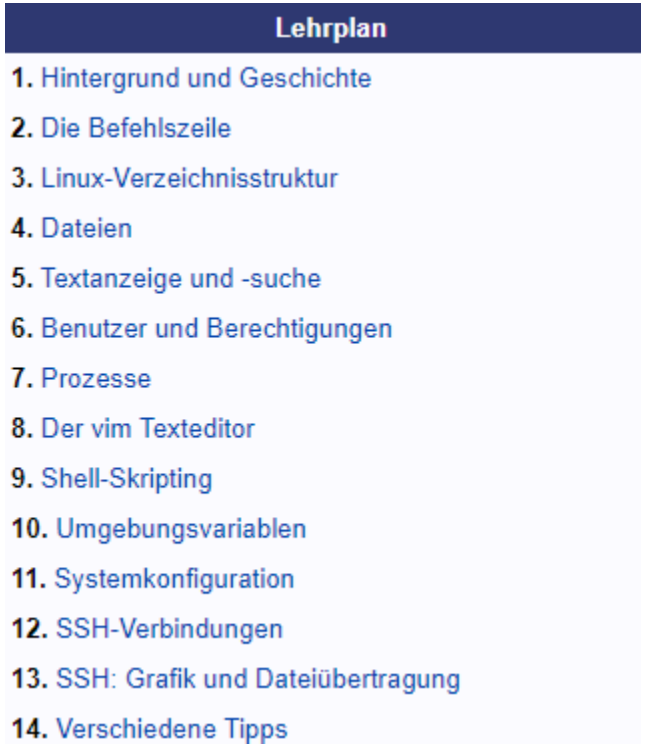
Creation of an **HPC Wiki**: https://hpc-wiki.info/

Courses and workshops – Linux Tutorial

HPC.NRW

As part of the HPC Wiki, **three online tutorials** have been created:

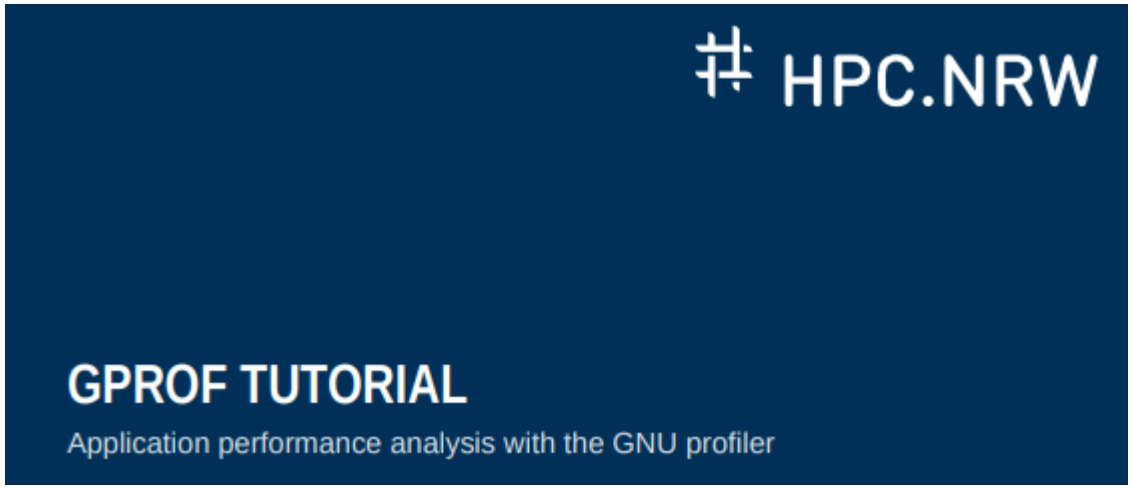
1. **Introduction to Linux in HPC**: https://hpc-wiki.info/hpc/Introduction_to_Linux_in_HPC



Lehrplan
1. Hintergrund und Geschichte
2. Die Befehlszeile
3. Linux-Verzeichnisstruktur
4. Dateien
5. Textanzeige und -suche
6. Benutzer und Berechtigungen
7. Prozesse
8. Der vim Texteditor
9. Shell-Skripting
10. Umgebungsvariablen
11. Systemkonfiguration
12. SSH-Verbindungen
13. SSH: Grafik und Dateiübertragung
14. Verschiedene Tipps

HPC.NRW

2. **Gprof Tutorial**: https://hpc-wiki.info/hpc/Gprof_Tutorial



INTRODUCTION HPC.NRW

Gprof is a free profiler from GNU

- simple way to analyze runtime behaviour of an application
  (low overhead, collect various meaningful insights)
- determine where most of the execution time is spent
  ⇒ locate code regions suited for optimization
- analyzes connections between individual functions

Courses and workshops – OpenMP Tutorial

HPC.NRW

3. **OpenMP in Small Bites**: https://hpc-wiki.info/hpc/OpenMP_in_Small_Bites

Lehrplan
1. Übersicht
2. Worksharing
3. Data Scoping
4. Falsche Freigabe
5. Tasking
6. Tasking und Data Scoping
7. Tasking und Synchronisation
8. Schleifen und Aufgaben
10. Aufgabenplanung
11. Ungleichmäßiger Speicherzugriff

Courses and workshops – Gauß-Allianz HPC calendar

HPC.NRW

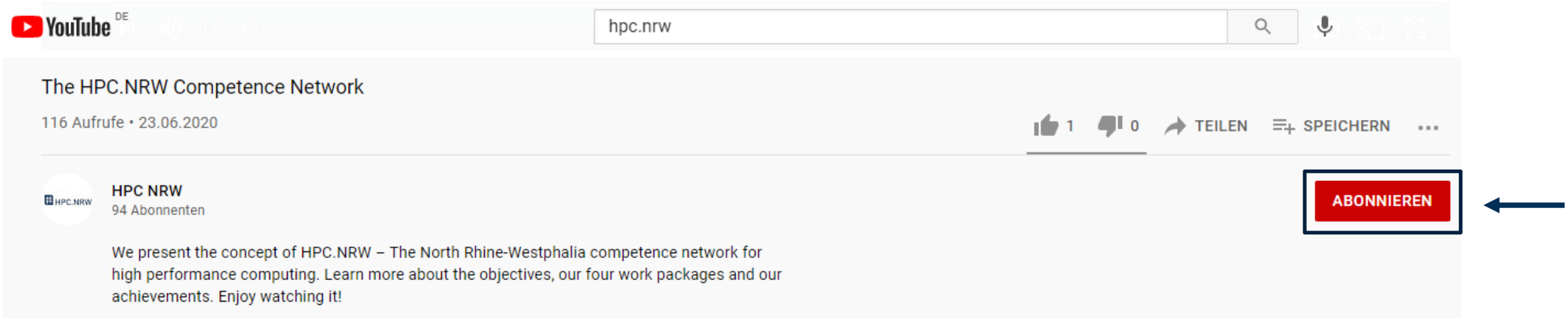
The Gauß-Allianz HPC calendar includes all **HPC related courses and workshops**:

https://hpc-calendar.gauss-allianz.de/

Courses and workshops – HPC.NRW on youtube

All relevant HPC.NRW information could be found on youtube as well:

https://www.youtube.com/watch?v=IfD9IPixgpo



Method-oriented consulting

HPC.NRW

The categories for method-oriented consulting are based on the „ACM Computing Classification System“.

The method-oriented consulting includes the following areas:

Parallel programming	Data science and machine learning
Performance analysis and optimization	Computational analytics
Correctness analysis	Data science tools
Simulation types and modeling mthodologies	Visualization
Modeling and simulation tools	Security and highly sensitive data

4.5 Business-oriented consulting

HPC.NRW

The business-oriented consulting includes the following areas:

Monitoring	Workload management
Accelerators	Compute-time proposals
CPU architectures	User management and accounting
Storage systems	Interconnects
File systems	Aquisitions/ tenders
Facility	Courses and workshops
User software installation	Interactive services
Research data	Cloud-computing
System Software	Grid-computing
High availability solutions	Virtualization

4.6 Subject-oriented consulting

HPC.NRW

The subject-oriented consulting is based and aggregated on the DFG categorization:

Economics	Mathematics
Medicine/ Genetics/ Bioinformatics	Geoscience
Physics	Chemistry
Computer Science	Engineering