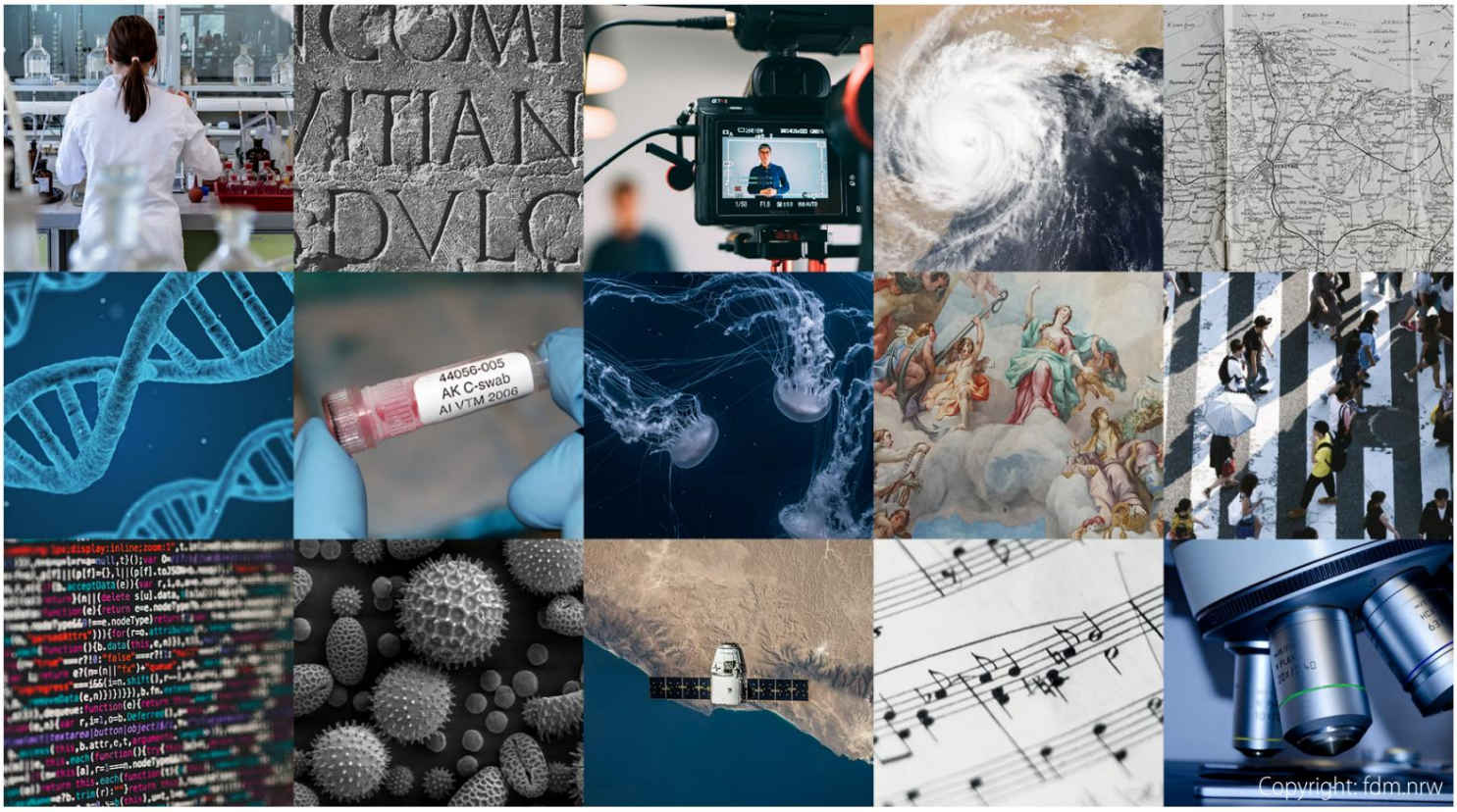

Zertifikatskurs Forschungsdatenmanagement

ZBIW.
Zentrum für Bibliotheks- und Informationswissenschaftliche Weiterbildung

Informationszentrum Lebenswissenschaften
ZB MED

Landesinitiative für Forschungsdatenmanagement
fdm.nrw

Technology
Arts Sciences
TH Köln

Research data management certificate course

In the course of the digitization of science, research data management (RDM) is increasingly becoming a field of activity in the focus of universities and non-university research institutions. Scientific work in the various disciplines is increasingly taking place in digital work environments, which are accompanied by the development of new methods and a rapidly growing amount of data. Handling this data requires close interaction between researchers and information service providers in the scientific institutions, since in addition to the subject-related aspects of RDM, a number of generic questions, for example in relation to the protection, maintenance, development and subsequent use of research data, must be answered.

The certificate course "Research Data Management" provides an insight into various areas of research data management and aims to qualify employees from science-related infrastructure areas as well as from active research for the tasks to be mastered together in this context. The thematic spectrum of the certificate course ranges from the research data life cycle, typical data types and research processes in various subject areas, open science, consulting approaches to RDM and research project management, the necessary technical infrastructure and metadata to sustainable data management and relevant legal aspects.

The course is designed as a blended learning offer, alternating (virtual) face-to-face and e-learning phases. It contains numerous practical exercises such as live coding as well as application-oriented examples and projects.

Target group

The certificate course "Research Data Management" is aimed at employees from the science-related infrastructure areas (including university libraries, computer centers or from research funding) and employees from active research (including data stewards, data scientists). Those interested must have completed vocational training or a degree and be located in a science-related institution in North Rhine-Westphalia. Knowledge of handling research data is also desirable.

Dates

08/25/2022 (1 day presence, alternatively 7 hours live online)
08/26/2022 (1 day presence, alternatively 7 hours live online)
September 2nd, 2022 (1 day presence, alternatively 6 hours live online)
September 23, 2022 (6.5 hours live online)
October 21, 2022 (6.5 hours live online)
11/04/2022 (6.5 hours live online)
11/25/2022 (7 hours live online)
09.12.2022 (7 hours live online)
01/20/2023 (6.5 hours live online)
February 10, 2023 (6.5 hours live online)
03/24/2023 (6 hours live online)
April 21, 2023 (6 hours live online)
06/16/2023 (1 day presence, alternatively 4 hours live online)

A total of 13 events are planned.

Content structure

The content is taught in nine modules:

Module 1: Basic module Fundamentals of FDM
Module 2: Basic module Open Science & legal aspects
Module 3: Basic module research, FD & RDM in the subject areas
Module 4: Advanced module Hacking & experimenting with data
Module 5: Advanced module Manage & share (meta) data
Module 6: Technical infrastructure advanced module
Module 7: Advanced module data & project management in research
Module 8: Advanced module FDM consulting & training
Module 9: Project Module

Workload The

certificate course lasts 10 months and is designed as a blended learning course with an alternation of face-to-face sessions (about 80 hours, depending on the module selection) and subsequent self-learning phases (about 125 hours). The three basic modules (modules 1-3) and four of the five advanced modules (modules 4 to 8) must be attended. The advanced modules are selected at the beginning of the course. The total time commitment is 240 hours. To obtain a certificate with 8 ECTS, a project work (module 9) can optionally be completed, the workload of which is calculated at around 35 hours.

diploma

Certificate of participation or certificate with 8 ECTS

A certificate of attendance will be issued for attendance at all 13 dates. The conclusion with a certificate can be achieved as part of the project module by creating a project work. For this purpose, the participants work on a topic of their choice from the course content.

The scientific management lies with Prof. Dr. Mirjam Blümm, Technical University of Cologne, Institute for Information Science and Advanced Media Institute and Prof. Dr. Konrad Förstner, ZB MED - Information Center for Life Sciences and Technical University of Cologne, Institute for Information Science.

The technical management lies with the state initiative for research data management in NRW - fdm.nrw and with Birte Lindstädt, ZB MED - Information Center for Life Sciences.

Registration and course size

Registrations are possible from February 14th, 2022 to April 29th, 2022.

Enclosed are a curriculum vitae (CV), a letter of motivation (one DIN A4 page), if possible a letter of reference from the employer and, if applicable, a certificate of participation in the "Train-the-Trainer workshop on FDM" and/or "Library/Software Carpentry workshop" to be attached. Further information on registration can be found on the following page: https://www.th-koeln.de/weiterbildung/zertifikatskurs-forschungsdatenmanagement_82048.php

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The maximum course size is 15 people.

After the end of the selection process, the documents you sent will be deleted in accordance with data protection regulations.

Note: You need an Internet-enabled device (PC or laptop) to access the learning platform

to access Moodle. There you will find materials, tasks and the access links to the video meetings, which take place via video conferencing software - usually Zoom. You will also need a webcam and a headset or other audio system.

If face-to-face appointments are possible, please bring your own pre-installed laptop to these appointments. In addition, it should be possible to install other programs independently.

Venue
ZBIW Moodle Platform; Zoom; Technical University of Cologne, Campus Südstadt, Ubierring 48, 50678 Cologne, room 211

course fee
The course fee is 2,500 euros.

This further training offer is part of the digitization offensive of the Ministry of Culture and Science NRW and is carried out in cooperation with the state initiative for research data management NRW - fdm.nrw and ZB MED - Information Center for Life Sciences. Scholarships covering up to 80% of the course fee are awarded to employees from institutions eligible for funding as part of the NRW digitization offensive. A separate application for a scholarship is not necessary. After the participants have been selected, an examination will be carried out to determine whether the criteria for awarding a scholarship are met.

Travel expenses for the face-to-face meetings and any hotel costs incurred for overnight stays in advance are to be borne by the participants themselves; the ZBIW has reserved a contingent in the Hotel Chelsea.

The course can only be booked as a complete package.

Contact
ZBIW of the Technical University of
Cologne Marvin Lanczek Tel.:
0221/8275-3695 Email: marvin.lanczek@th-koeln.de

The modules

The "Research Data Management" certificate course consists of nine modules that are closely interlinked in terms of content. On the following pages you will find a detailed description of all modules.

Module 1:	**Basic module Fundamentals of FDM**
contents	"Train-the-Trainer" workshop on research data management In addition to didactic approaches, methods and everything related to one Seminar structure heard, the following aspects of the Research data management teaches: » Research data life cycle » Research data policies » Data Management Plan » Structuring of data » Documentation » Storage and Backup » Long-term archiving » Access security » Publication of research data » Reuse of research data » Legal aspects Kick-off day of the certificate course » Networking and group finding of the participants » Organization and procedure of the certificate course » Sustainable use of research software » Fields of action in FDM (examples and insights)
learning goals	At the end of the module » you know the basics of FDM, on which the further modules are based, » you have been taught all the learning objectives from the current train-the-trainer concept on research data management (https://doi.org/10.5281/zenodo.1215376), » you know the course participants and the organization team, » you have an overview about the structure, the organization and the course of the certificate course, » you know why a sustainable use of research software important is, » you got an insight into the fields of action of the FDM.
methods	Individual work, joint processing of documents, group work, Playful learning, practice
Lecturers Katarzyna Biernacka	discipline workshops **Prof. Dr. Mirjam Blümm** Technical University of Cologne, Institute for Information Science and Advanced Media Institute **Prof. Dr. Konrad Forstner**

	ZB MED – Information Center for Life Sciences and Technical University of Cologne, Institute for Information Science **Marvin Lanczek** ZBIW of the Technical University of Cologne **Birte Lindstaedt** ZB MED – Information Center for Life Sciences **Benjamin Slowig** state initiative fdm.nrw
Workload 2 presence	days of 7.5 hours each + 1 presence day of 6 hours each = 21 hours. The attendance days of the train-the-trainer workshop on research data management can also be completed at a different time. In this case, a certificate of participation must be submitted.
location	Technical University of Cologne, Campus Südstadt, Room 211; ZBIW moodle platform; zoom
Events	Presence day (alternatively: live online) 08/25/2022 | 9.00 a.m. – 4.30 p.m. 26.08.2022 | 9.00 a.m. – 4.30 p.m Presence day (alternatively: live online) 09/02/2022 | 10:00 a.m. – 4:00 p.m

Module 2:	**Basic module Open Science & legal aspects**
contents	A) Introduction - overview and interaction of "openness" and law in FDM » Presentation of the research cycle » Legal aspects in the research cycle » Definition of open science » Connection "Open Science" and law in FDM B) Main part: Legal aspects in FDM » Aspects of "Open Science": What does the opening of the research cycle in terms of Open Science in detail? Which aspects / challenges are discussed here? What initiatives / platforms / solutions are there? » What does the opening of the research cycle in the sense of Open Science mean in the legal sense? What restrictions are there for the concept due to legal requirements? » Copyright and Licensing » Research data and data protection: “As open as possible, as closed as necessary” » Legal aspects of institutional FD policies, good scientific practice and the FAIR principles » Actors and initiatives for law in RDM
learning goals	At the end of the module » can you explain what the opening of the research cycle in the sense of open science means in detail and where the challenges lie, » Do you have an awareness of which legal aspects play a role at the different points in the research cycle and which additional legal aspects result from an opening in the in the sense of Open Science, » you know the copyright and license law as well as the data protection and data security legal framework for FDM and can thus make an assessment of typical legal requirements and inquiries, » you have an overview of the current developments, initiatives, actors and contacts on legal aspects of RDM.
methods	Individual work, group work, materials for self-study with key questions, Lecture/presentation
Lecturers Thomas Hartmann	**Hartmann** FIZ Karlsruhe – Leibniz Institute for Information Infrastructure GmbH **dr Jasmin Schmitz** ZB MED – Information Center for Life Sciences

	Oliver Watteler GESIS – Leibniz Institute for the Social Sciences
Workload 24 hours of e-learning and 3 video meetings of 2 hours each = 30 hours.	
location	ZBIW Moodle Platform; zoom
Events	Video meetings 09/23/2022 | 9.00 a.m. – 11.00 a.m. 21.10.2022 | 9 a.m. – 11 a.m. 04.11.2022 | 9.00 a.m. – 11.00 a.m

Module 3:	**Basic module research, FD & RDM in the subject areas**
contents	Presentation of research data management in different Disciplines: » Digital Humanities » Engineering Sciences » Biodiversity » (Bio) medicine/health » Social Sciences » Chemistry For this purpose, the research processes, data types, tools, infrastructures and selected use cases or best practices of the individual disciplines are examined.
learning goals	At the end of the module » know the subject-specific requirements in relation to data and Research data management, » have you learned about research methods and data types in the departments, » you know metadata standards in the departments, » you know frequently used tools in the departments (e.g Electronic lab notebooks), » know selected use cases, » know subject-specific infrastructures and repositories, » know subject-cultural peculiarities, for example with data Sharing practice and data search (chemistry), » you know the legal peculiarities in the departments, » you have practical experience with subject-specific research data collected.
methods	In advance: small exercises/tasks (maximum 30 minutes per task), Material and literature study (will be given) During the module: Presentation and discussion of the results of the exercises/tasks, individual work, joint processing of documents, group work
Lecturers Prof. Dr.	**Brigitte Mathiak (Digital Humanities)** GESIS – Leibniz Institute for the Social Sciences **Mario Moser (NFDI4Ing)** Machine tool laboratory WZL of the RWTH Aachen **Prof. Dr. Frank Oliver Glöckner (NFDI4BioDiversity)** Alfred Wegener Institute – Helmholtz Center for Polar and Marine Research

	dr Harald Kusch / Birte Lindstaedt (NFDI4Health) University of Göttingen - Institute for Medical Informatics / ZB MED - Information Center for Life Sciences **dr Jan-Ocko Heuer / Dr. Anja Perry (KonsortSWD)** University of Bremen – FDZ Qualiservice / GESIS – Leibniz Institute for Social Sciences **dr Jochen Ortmeyer (NFDI4Chem)** RWTH Aachen – Chair of Bioinorganic Chemistry
Workload 18 hours of e-learning and 6 video meetings of 2 hours each = 30 hours.	
location	ZBIW Moodle Platform; zoom
Events	Video meetings 09/23/2022 | 11.30 a.m. – 4 p.m. 21.10.2022 | 11.30 a.m. – 4.00 p.m. 04.11.2022 | 11:30 a.m. – 4:00 p.m

Module 4:	**Advanced module Hacking & experimenting with data**
contents	In the course of this module, concepts for the efficient and reproducible processing of data are conveyed. The aim of the workshop is to familiarize you with various tools, but also to create awareness of computational thinking, automation and optimization of your own data processing. Basic skills are taught in the use of the Unix Shell, the programming language Python and the distributed versioning system Git as well as the platform GitHub. With these tools and skills, you can generate data processing flows and work on them collaboratively. Previous participation in an official "Library Carpentry" or "Software Carpentry" workshop can replace this module. Please clarify this with the lecturer before the module.
learning goals	At the end of the module you will have » Knowledge of the efficient handling of data and concepts such as automation and reproducibility, » Basic knowledge of the Unix shell, » Basic knowledge of the Python programming language, » Basic knowledge of the Git and GitHub versioning system.
methods	Discussion, individual work, exchange of experiences, case study, group work, live coding
Lecturers	**Prof. Dr. Konrad Forstner** ZB MED – Information Center for Life Sciences and Technical University of Cologne, Institute for Information Science **Rabea Mueller** ZB MED – Information Center for Life Sciences
Workload 16 hours of e-learning and 2 video meetings of 7 hours each = 30 hours.	
location	ZBIW Moodle Platform; zoom
Events	Video meeting TT.11.2022 | 1.00 p.m. – 1.30 p.m. 25.11.2022 | 9.00 a.m. – 4.00 p.m. 09.12.2022 | 9:00 a.m. – 4:00 p.m

Module 5:	**Advanced module Manage & share (meta) data**
contents	Structure & organize data » Standards for file names & folder structure » Data Formats » Metadata & metadata formats » Ontologies, Semantic Web, Linked Data Share & publish data » FAIR principles » Persistent identifiers » Initiatives & Projects » Citation of research data Find & (re)use research data » Research data repositories and data portals » Directories and search engines
learning goals	At the end of the module » you will know concepts for building folder structures and naming files systematically, » you can evaluate different data formats, » you can apply common metadata vocabularies, » you have an insight into the use and benefits of ontologies, » Do you know the advantages and disadvantages of different data repositories and are familiar with various research tools and strategies for finding research data, » you are familiar with the FAIR principles, » you know and understand the function of persistent identifiers various examples, » you know relevant initiatives and projects, » you know what to consider when citing research data.
methods	Individual work, joint processing of documents, group work, exercise
Lecturers Prof. Dr. Miriam Blümm	Technical University of Cologne, Institute for Information Science and Advanced Media Institute **Cord Wiljes** National Research Data Infrastructure (NFDI) eV
Workload 24 hours of e-learning and 2 video meetings of 4 and 2 hours = 30 hours.	
location	ZBIW Moodle Platform; zoom

Events	Video meetings 01/20/2023 | 9.00 a.m. – 1.30 p.m. 10.02.2023 | 9.00 a.m. – 11.00 a.m

Module 6:	**Advanced module technical infrastructure**
contents	Storage systems: » Overview of current storage media and systems and their areas of application » Various techniques for organizing storage media » Different access mechanisms to storage systems » Current developments and outlook Long-term archiving/long-term availability of research data: » Overview of technical aspects and issues of digital long-term archiving » Synergies between the fields of activity "Research Data Management" and "Long-Term Archiving" » Dealing with different file formats in the long-term archiving of research data repositories » Definition of the term "repository" » Search for repositories » Community Standards » Interfaces and technical formats » Legal framework » Operating models and sustainability » Certification
learning goals	At the end of the module you can » Assess which storage systems are suitable for which requirements and application scenarios, » Assess the advantages and risks of different storage systems and different storage organisations, » Concepts and models from research data management and the Put long-term archiving in relation to each other, » technical aspects of long-term archiving to the processes of transfer research data management, » use tools for file format recognition and validation, » have an overview of the tasks of repositories and their organizational integration into existing processes, » important technical, legal and organizational requirements for understand the operation of repositories, » locate the repositories in the research data landscape.
methods	Exchange of experiences, materials for self-study with control questions, exercises

Lecturers Dr. Alexandra Axtmann Karlsruhe Institute of Technology - KIT Library **Pia Rudnik** Technical Information Library Hanover **Robert Ulrich** Karlsruhe Institute of Technology - KIT Library **dr Andreas Weber** University and City Library Cologne	
Workload 24 hours of e-learning and 2 video meetings of 2 and 4 hours = 30 hours.	
location	ZBIW Moodle Platform; zoom
Events	Video meetings 01/20/2023 | 2 p.m. – 4 p.m. 10.02.2023 | 11:30 a.m. – 4:00 p.m

Module 7:	**Advanced module data & project management in research**
contents	Planning of research data management in the project of the application phase to implementation » Structure and planning of a funding application o Milestone and resource planning o Creation and integration of a data management plan (DMP) into the process » Evaluation criteria and the DMP concept from the perspective of the funding agency » (inter)national funding landscape and data management initiatives » Implementation of RDM o Communication & responsibilities in the institution o DMPs from the perspective of the researchers » Implementation of FDM including subject-specific DMP templates » Project management and DMP tools/methods
learning goals	At the end of the module » know different funding institutions and their funding goals Regarding FDM and expectations of DMPs, » you can create DMP templates, » you know the national and international perspectives as well as working groups on DMPs, » know best practices for using DMPs perspective of researchers, » you understand the criteria according to which applications are evaluated and how the application process works, » you know how a funding application is structured and designed with regard to RDM and especially the DMP in terms of content, » know processes and examples of how FDM can be implemented in projects and DMPs can be integrated into the workflows, » you have different organizational structures of projects got to know and you can create a project-specific DMP, » Do you have different forms of project management and the combination with the DMP, » you know suitable tools for creating a DMP and for Project management support.
methods	Individual work, joint processing of documents, group work, exercise
Lecturers Prof. Dr.	**Miriam Blümm** Technical University of Cologne, Institute for Information Science and Advanced Media Institute **dr Constanze Curdt** GEOMAR - Helmholtz Center for Ocean Research **Daniela Hausen** University library of the RWTH Aachen University

Workload 24 hours of e-learning and 2 video meetings of 3 hours each = 30 hours.	
location	ZBIW Moodle Platform; zoom
Events	Video meetings 03/24/2023 | 9.00 a.m. – 12.00 p.m. 21.04.2023 | 1:00 p.m. – 4:00 p.m

Module 8:	**Advanced module FDM consulting & training**
contents	FDM consulting » Counseling theories » Interviewing techniques and counseling strategies » Conflict management » Advice process (preparation, implementation, follow-up, Documentation) » Counseling settings » Provision of Information FDM training » Linking to Module 1 » Backward Design » Target group and needs analysis: For whom is a workshop/event planned against the background of what needs? » Substance reduction » active involvement of the participants
learning goals	At the end of the module » you can advise researchers professionally on the basis of relevant theories, » you know various consulting methods and techniques and how they are applied in certain settings, » you can act confidently in difficult counseling situations, » you know the forms of presentation for the provision of information, » you can plan an interactive FDM training course in a comprehensible way, taking into account a self-defined target group.
methods	Brainstorming, individual work, joint editing of documents, Group work, project work, research, role play
Lecturers Julia Gerber	Trainer for university didactics **Kerstin Helbig** Humboldt University of Berlin – computer and media service **Marina Lemaire** University of Trier – Service Center eSciences
workload 24 hours. E-learning and 2 video meetings of 3 hours each = 30 hours.	
location	ZBIW Moodle Platform; zoom

Events	Video meetings 03/24/2023 | 1:00 p.m. – 4:00 p.m. April 21, 2023 | 9:00 a.m. – 12:00 p.m

Module 9:	**project module**
contents	You work on a practical project in which the content of one or more modules is used, ideally to solve a real problem in your own work environment. This can be, for example, a concept for research data management, a data management plan, a data processing program or similar. You will receive feedback from your peers as you work.
learning goals	At the end of the module » you have practically applied the contents of this certificate course in a project, » you are able to solve problems in the field of FDM in your analyze everyday work and develop solution strategies.
methods	Peer feedback, project work
Lecturers Prof. Dr. Miriam Blümm	Technical University of Cologne, Institute for Information Science and Advanced Media Institute **Prof. Dr. Konrad Förstner** ZB MED - Information Center for Life Sciences and Technical University of Cologne, Institute for Information Science
Workload 35 hours of project work and 1 attendance day of 4 hours = 39 hours.	
location	ZBIW Moodle Platform; Zoom; TH Cologne, Campus Südstadt, Ubierring 48, 50678 Cologne, room 211
Events	by appointment: consultation hours for the Finding/limiting the topics of the project work Closing day (attendance): 06/16/2023 | 1:00 p.m. – 5:00 p.m. Presentation of the project work, followed by a social event

Characteristics and advantages of certificate courses

Qualify while working, acquire new professional skills and key qualifications, experience stimulating professional exchange - there are many reasons for taking part in a certificate course.

Certificate courses offer scientifically sound, practice-oriented and up-to-date advanced training in a compact form at university level, which is precisely tailored to the needs of practice. Certificate courses are self-contained both thematically and organizationally and consist of several modules that build on one another, whereby the content can be applied immediately in everyday work and already provides added value for everyday life during further training. As extra-occupational training, the certificate courses are tailored precisely to the tight time budget of working people and can therefore be flexibly integrated into an overall concept of life-spanning learning.

The certificate from TH Köln for a successfully completed certificate course is nationally and internationally recognized proof of achievement. In addition, based on the ECTS awarded, it is generally possible to credit the achievements in subsequent or parallel university studies. The certificate is issued after passing the technical or project work.