

**Information for applicants for the professorship in "Applied Mathematics, in particular Numerical Mathematics and Scientific Computing" (W1 Tenure Track as per W3)**  
at the Faculty of Mathematics

# Table of contents

1. The University of Duisburg-Essen: Open-Minded
  - The University
  - What we offer as an employer
2. Faculty of Mathematics
3. Our Research Groups in Numerical Mathematics and Optimization
4. Information about the position
  - Additional information
5. Legal framework
6. Salary

## 1. The University of Duisburg Essen: Open-Minded

**We are one of the youngest universities in Germany and think in terms of opportunities rather than limitations. In the heart of the Ruhr metropolis, we develop ideas with a future at 11 faculties.**

**We are strong in both research and teaching and consider diversity an integral part of our culture as we promote potential and are committed to upholding genuine equity in education.**



*A view of the Essen campus. Please find further images at:  
<https://www.uni-due.de/en/impressions-essen-campus.php>*

Located in the heart of the Ruhr metropolis, the University of Duisburg-Essen (UDE) is one of the youngest and largest universities in Germany. The courses range from the humanities and social sciences via economics and business studies all the way to the engineering sciences and natural sciences (including medicine). The University has also established itself firmly in the international scientific community since being founded in 2003.

This is reflected by the top positions UDE has recently achieved in international rankings. In a comparison of the best universities founded after the turn of the millennium, UDE ranks sixth worldwide. In the Times Higher Education (THE) Young University Ranking, UDE is 18th among the top 200 international universities that are under 50 years old. UDE is also well ahead when it comes to citations of scientific publications: it ranks 15th nationwide and in the top 300 internationally in the THE World University Ranking.

The research carried out at UDE covers a broad spectrum including five cross-departmental flagship programmes: nanosciences, biomedical sciences, urban systems, transformation of contemporary societies and water research. Lifelong learning and socialisation processes are another central field of research.

Thanks to digitally supported teaching and learning concepts, UDE is an attractive location for research-based teaching. Around 42,000 students from over 130 countries are enrolled at UDE in a total of over 250 courses of study, 127 of which include the option to teach in schools.

UDE is considered a paradigm throughout Germany of how equity in education can be implemented at a university with a strong track record in research. Numerous measures and projects are in place to support talented young people and offer them prospects. UDE considers itself a vibrant environment of diversity and openness where students, researchers and staff can unfold their potential and willingness to perform. At the same time, we make every effort to ensure our development covers a wide range of areas and is resource-friendly.

In a strategic partnership, UDE is affiliated with Ruhr University Bochum (RUB) and TU Dortmund University. Together, they form the University Alliance Ruhr (UA Ruhr) and collaborate closely in research and teaching. They also have joint liaison offices on two continents. In addition, UDE maintains partnerships with more than 100 universities around the world.

**Please find further information at:**

- [https://www.uni-due.de/imperia/md/content/dokumente/image\\_broschueren\\_en.pdf](https://www.uni-due.de/imperia/md/content/dokumente/image_broschueren_en.pdf)

## What we offer as an employer:

### *Seal of quality from the German Association of University Professors and Lecturers*

In August 2014, the University of Duisburg-Essen received the German Association of University Professors and Lecturers' (DHV) seal of quality for the fair and transparent nature of its appointment proceedings.

In August 2017, UDE also successfully underwent the re-audit procedure that takes place after three years and was awarded the seal of quality for the fair and transparent nature of its appointment proceedings for a further five years.

### *Family-friendliness*

At UDE, there is a wide variety of services aimed at helping to reconcile work and family. The Family Service Office provides advice regarding very practical matters of childcare and care for relatives. Furthermore, there are various care services on offer including daycare facilities, holiday care and short-term care.

Since 2010, UDE has also successfully taken part in the family-friendly university audit (*audit familiengerechte hochschule*) run by berufundfamilie GmbH. Even as a 'family-friendly university', UDE continues to consider improving family-friendliness a shared goal of all University members and consistently pursues the self-commitments that result from the audit.

### *Onboarding and Dual Career Service*

The Onboarding team within the Appointment Management Department provide advice for getting started at UDE and can connect you with UDE's consultation services. They also offer the Dual Career Service.

### *Coaching and further training*

The personal further development of its staff members with management responsibilities is of particular importance to UDE. At UDE, it goes without saying that we offer coaching and seminars on leadership development, which are provided both internally and externally. Together with the Personnel Development Department, other suitable tools for furthering these staff members can be identified.

### *Promoting good health*

As part of UDE's efforts to promote good health, there are numerous opportunities that enable staff to do something for their health and well-being in an active way at or near to the workplace.

### *Company ticket*

The company transport ticket enables inexpensive and environmentally friendly mobility.

## 2. Faculty of Mathematics

With its 29 research groups our faculty belongs to the biggest mathematical departments in Germany and covers a broad range of up-to-date disciplines in mathematics from fundamental research to the study of concrete applications. Our research groups interact in numerous ways through the universality of mathematical concepts. With its various research projects based on third-party funding, our faculty provides a lively and inspiring environment for researchers in all stages of their career in order to participate in modern scientific developments.

### Research Areas

- Algebraic Geometry and Number Theory
- Analysis
- Numerical Mathematics and Optimization
- Stochastics
- Didactics of Mathematics

Since October 2012 the Faculty of Mathematics is located in the "Mathematik-Carée" in a western quarter of the city of Essen. Working together in a common building enables our research groups to interact fruitfully in both research and teaching.

### Study programmes

The faculty offers study programmes in mathematics, technical mathematics and economics-oriented mathematics (Bachelor/Master), as well as study programmes in math education of all types and levels. Our students benefit from our research in didactics in mathematics which explores the use of digital tools in teaching. The Faculty for Mathematics offers lectures for the Faculties of Chemistry, Engineering, Physics and Economics. To this end we maintain a range of offices located on the campus of Duisburg.

### Third-Party Funding

The excellent quality of our research is also shown in the successful acquisition of third-party funding by the German Research Council (DFG), the Federal Ministry of Economic Affairs, the Federal Ministry of Education and Research, by the European Union and other research funding agencies.

### 3. Our Research Groups in Numerical Mathematics and Optimization

We currently host a cluster of seven research groups in numerical mathematics and optimization working on a broad range of up-to-date topics. Our research groups cooperate with numerous partners on national and international levels. Areas of research represented by our faculty include

- Applied and numerical mathematics
- Numerical mathematics of partial differential equations
- Non-linear optimization
- Optimal control of partial differential equations
- Optimization and algorithmic discrete mathematics
- Infinite dimensional optimization

This includes topics and methods from various fields such as geometric partial differential equations, discretization and iterative solutions of partial differential equations, numerical mathematics of solid and fluid mechanics, discretization and regularization strategies, numerical aspects of electro magnetism, stochastic discrete optimization, as well as shape optimization.

## 4. Information about the open position

We are looking for applications by early career researchers working in a modern field of numerical mathematics and scientific computing such as

- Numerical mathematics of partial differential equations, in particular non-linear phenomena with applications to engineering and the sciences
- Mathematical methods in machine learning and data science.

Contributions to joint research activities (e.g. proposals for collaborative DFG funding) in the area of applied mathematics is expected.

We also expect the applicant to participate in our teaching programm, including service lectures at other departments.

### Optional supplementary information

Publications in refereed journals and previous experience with third-party funding are desired. Teaching requirements currently are four hours of teaching during the first, and five hours of teaching during the second employment stage of the Junior Professorship. Employment is contingent on the presentation of the corresponding requirements for temporary civil service. The duration of employment complies with § 39 Sect. 5 HG.

The tenure-track phase consists of six years with evaluation processes at the end of three and six years, respectively. If both evaluations are positive, the application will be promoted to a permanent position of full professor (salary scale W3).

The tenure-track process will be carried out according the current regulations of the University of Duisburg-Essen:

- [https://www.uni-due.de/imperia/md/content/zentralverwaltung/bereinigte\\_sammlung/2-12.pdf](https://www.uni-due.de/imperia/md/content/zentralverwaltung/bereinigte_sammlung/2-12.pdf)

## 5. Legal framework

Universities are state-funded bodies under public law with legal capacity. State funding is based on the university's tasks, the obligations agreed upon in university contracts and the university's performance. They have a global budget and are not subject to individual instructions from the Ministry for Culture and Science of the state of North Rhine-Westphalia.

If the legal requirements are met, professors are appointed as permanent civil servants as a rule. Professors can also be appointed on the basis of an employment contract under private law.

When awarding a junior professorship, it is to be noted that individuals who already meet the hiring requirements for a university professorship due to having completed a habilitation or another reason cannot be considered.

### Further information (in German):

- Contacts  
[www.uni-due.de/verwaltung/organisation/peo\\_professoren.php](http://www.uni-due.de/verwaltung/organisation/peo_professoren.php)
- Regulations on the appointment proceedings  
[www.uni-due.de/imperia/md/content/zentralverwaltung/bereinigte\\_sammlung/2-10-mai12.pdf](http://www.uni-due.de/imperia/md/content/zentralverwaltung/bereinigte_sammlung/2-10-mai12.pdf)
- Information on the appointment and hiring process  
[www.uni-due.de/verwaltung/berufungsmanagement/](http://www.uni-due.de/verwaltung/berufungsmanagement/)

## 6. Salary

The salary of university teaching staff is stipulated by the North Rhine-Westphalian system for the remuneration of civil servants. These staff members fall under the W salary range, which contains the bands W1, W2 and W3.

Basic salaries can be supplemented with (performance) bonuses in bands W2 and W3. These performance-based salary components can be awarded

- as a result of appointment and retention negotiations (appointment and retention bonuses),
- for special achievements in research, teaching, art, further education and supporting early career researchers (special achievement bonuses),
- for assuming functional or special responsibilities as part of the University's self-governance or University management (functional bonuses).

In certain circumstances, so-called teaching and research bonuses may be paid from private third-party funds.

During appointment and retention negotiations, performance bonuses can also be agreed for a fixed period of time if they are linked to target and performance agreements.

Appointment bonuses are to be negotiated on an individual basis with the Rector of the University of Duisburg-Essen as part of appointment negotiations.

Please find a table showing the current remuneration (in North Rhine-Westphalia) for the salary bands W1, W2 and W3 at:

- [https://www.finanzverwaltung.nrw.de/sites/default/files/asset/document/grundgehaelter\\_a\\_b\\_r\\_und\\_w.pdf](https://www.finanzverwaltung.nrw.de/sites/default/files/asset/document/grundgehaelter_a_b_r_und_w.pdf)

You can find information on the W salary range (in North Rhine-Westphalia) and the legal foundations for it on the following webpages:

- [www.uni-due.de/verwaltung/organisation/peo\\_links.php](http://www.uni-due.de/verwaltung/organisation/peo_links.php)
- <https://www.research-in-germany.org/en/jobs-and-careers/info-for-senior-researchers/career-paths/professorship/professor-university.html>

Further information (in German) can be found in the regulations on awarding performance-related bonuses:

- [www.uni-due.de/imperia/md/content/zentralverwaltung/bereinigte\\_sammlung/3\\_60.pdf](http://www.uni-due.de/imperia/md/content/zentralverwaltung/bereinigte_sammlung/3_60.pdf)