

Description of the appointment process of a tenure track position (assistant/associate/full professor)

Applied Mathematics

Location: School of Engineering Sciences, Department of Computational Engineering,
Lappeenranta campus

The rector has approved the description and initiated the appointment process on
26 February 2024.

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Applied statutes

Universities Act (558/2009)
Government decree on universities (770/2009)

Regulations of LUT University (8 December 2022)

Rector's decision: Academic career tracks of the Lappeenranta–Lahti University of Technology
LUT (20 March 2023)

Additional information

Further information on the duties of the professor is provided by Lassi Roininen, professor of
applied mathematics, tel. +358406754885, email lassi.roininen@lut.fi

1 Background

LUT University is a challenger university aiming to conduct high-quality research that is relevant to society and industries. As a compact, agile, and highly focused university, together with its partners, LUT contributes to an economically, ecologically, and socially sustainable society in its focus areas.

Clean energy, water and air are life-giving resources for which we at LUT University seek new solutions with our expertise in technology, business and social sciences. We help society and businesses in their sustainable renewal.

LUT University was established in 1969. Our entrepreneurially thinking scientific and international community comprises approximately 6600 students and 1250 experts engaged in scientific research and academic education. There are 98 nationalities present on our modern campuses in Lappeenranta and Lahti.

In our schools – the LUT School of Energy Systems, the LUT School of Engineering Sciences and LUT Business School – we conduct research and provide education that are internationally recognised and relevant to both society and business.

LUT School of Engineering Sciences (LENS)

Our mission is to train problem-solvers in engineering and contribute to a wider understanding of our world through research in technology and social and communication sciences. Our research and education are characterised by an entrepreneurial, global and sustainable mindset. The LUT School of Engineering Sciences serves industry and society with its international expertise in separation and process technologies, computer vision and pattern recognition, applied mathematics and physics, industrial engineering and management, software engineering, and social sciences. Our strength lies in our close collaboration with companies combined with strong theoretical and methodological expertise.

Our department concentrates on applied mathematics, computer vision and pattern recognition, computational spectroscopy, and atmospheric modelling. We have a globally unique cluster of expertise in uncertainty quantification and inverse problems. More specifically, our methodological research includes areas such as non-parametric or parametric statistical inverse problems, hierarchical models, MCMC, optimisation, stochastic (partial) differential equations, numerical analysis, finite element methods, and dynamic systems. We pursue interdisciplinary science: we collaborate with large-scale interdisciplinary research infrastructures.

<https://www.lut.fi/en/about-lut/faculties/lut-school-engineering-sciences>

2 Vacant professorship

The professorship in applied mathematics is located at the Department of Computational Engineering of the School of Engineering Sciences (LENS) at LUT University. The position is based in Lappeenranta, Finland.

The professorship strengthens and complements the applied mathematics expertise of the Department of Computational Engineering, which hosts the Research Council of Finland's Centre of Excellence for Inverse Modelling and Imaging and the Flagship of Advanced Mathematics for Sensing, Imaging and Modelling (FAME). In particular, the person appointed to the position is expected to strengthen the research and activities in mathematical modelling

related to the FAME. In addition, the appointee must be able to successfully build a dedicated independent research group alongside existing research lines, reinforcing the specialisation of the department in computational sciences. The current priorities of the department include inverse problems, computational statistics, numerical analysis, computer vision and pattern recognition.

The field of the professorship is applied mathematics. Candidates must have a strong research record in this area. We expect evidence of both independent methodological development and numerical applications of methods.

We value experience of successful project work and research collaboration. In particular, candidates are expected to have a career-long track record and potential for impactful international publishing and experience in securing external funding. The person appointed to the position is expected to be involved in corporate collaboration. Evidence of activity in interdisciplinary and international collaboration will be considered an asset. The appointee should be willing to shape the research field based on the requirements of education and/or research in the field and to engage in interdisciplinary collaboration with other research groups at the school and LUT.

The professorship includes bachelor's, master's and doctoral education in key areas of computational engineering. In line with the research strategy of the LUT School of Engineering Sciences, advanced teaching will focus on method development involving clean energy production, the circular economy, and spin-off business creation.

The duties of the professor will also include the following research-related tasks

- design and delivery of bachelor's, master's and doctoral education
- supervision of theses and doctoral studies
- preparation of national and international research and education projects
- research with an international impact
- knowledge enhancement for the benefit of industry and the economy
- participating as an expert in the preparation of projects at other LUT units
- administrative tasks related to the activities of the university

The position is at the assistant/associate/full professor levels of the tenure track and will be filled through an open call for a fixed term of four years (assistant/associate professor) or permanently (full professor). The tenure track system offers researchers a possibility to advance to the next level, provided they meet the requirements in the promotion reviews.

More information on the LUT tenure track system:

<https://www.lut.fi/en/research/research-career-lut/tenure-track>

The position starts with a six-month trial period.

3 Qualifications

According to the administrative regulations of LUT University, adopted on 8 December 2022, assistant/associate professors are required to have a doctorate, high-level scientific qualifications, experience in heading scientific research, the ability to acquire funding, the ability to provide high-level instruction based on research, the ability to supervise final theses, proof of international cooperation in their field of research, and when relevant to the duties of the position, practical experience in the field of the professorship.

Applicants must have research and teaching merits, proof of effective research and the acquisition of external research funding, and international experience. The appointed applicant will be the immediate supervisor of a research group and may need to perform other demanding management duties assigned by the university. Therefore, related skills will be taken into consideration in the appointment and attention will be paid to the applicant's merits as defined in LUT's tenure track system (Annex).

Under the universities decree (770/2009), persons in teaching and research positions at universities are required to master the language, Finnish or Swedish, in which they teach. According to the university regulations, section 28, foreign or naturalised Finnish citizens may be appointed to a teaching or research position regardless of the fact that they have not demonstrated skills in Finnish and/or Swedish. Applicants for professorships may demonstrate their language skills with a language certificate accepted by the academic council and/or in an interview.

According to the university regulations, section 28, professors are required to have the language skills needed for the successful completion of their duties.

In this position, spoken and written fluency in English is required. The appointed person is encouraged to acquire the necessary Finnish skills during the employment relationship. For this purpose, LUT offers in-house Finnish language courses to staff members.

4 Applying for the position

Application

The application must specify the tenure track level applied to. The deadline for applications is indicated in the vacancy announcement. The application and material for expert assessors should primarily be submitted through the online recruitment system mentioned in the vacancy announcement.

All application documents must be in English and in PDF format. The application must include:

- a curriculum vitae (max. 10 pages)
- a copy of the applicant's doctoral diploma
- a full list of publications including the applicant's Scopus and Google Scholar details: the Scopus ID and Google Scholar profile URL, the total number of publications, and total number of citations and h-indices
- a separate list of the 10 publications selected for expert evaluation
- the 10 publications mentioned above
- a teaching portfolio or an equivalent account of the applicant's teaching qualifications
- an account of the applicant's merits and activities of significance to the vacancy (max. 3 pages)
- an account of the applicant's vision on the development of education, research, and projects in the field of the professorship at LUT University (max. 3 pages)

Contact information

Applicants must give the university an e-mail address at which they can be reached. Applicants who do not wish to be contacted by e-mail must give a postal address at which they can be reached during the appointment process. The university prefers e-mail.

5 Expert evaluators

Selection of experts

The experts must be impartial. Before the selection of expert evaluators, the applicants must be provided the possibility to comment on their possible disqualification.

Based on the proposal of the selection committee, the dean invites at least three internationally recognised experts to submit a statement on the qualification of the applicants. The university's staff members may not be invited as expert evaluators. To the extent possible, the experts should be chosen with the applicants' fields of specialisation in mind and with a view to impartiality.

Sections 27–29 of the Administrative Procedure Act (434/2003) apply to the disqualification of an expert evaluator.

Applications forwarded to expert evaluators

The selection committee may limit the number of applications forwarded to expert evaluators if there are four applicants or more. At least three applications must be forwarded to the experts. The applications may be limited to the most suitable candidates for the position in the view of the person making the decision. The selection committee must state the grounds for its decision. The applicants will be informed if any applications are excluded from the evaluation.

Expert statements

The expert evaluators must give their statements in writing within the given time. More specific dates will be sent to the evaluators along with instructions. In their statement, the experts must evaluate especially the scientific qualification of the applicant, and if possible, also other merits related to the professorship, and rank the applicants in order of preference.

Expert evaluators may not take part in the appointment process at a later stage.

The statement must be submitted to the university (separate instructions issued) by the deadline.

6 Interview and trial lecture

Applicants deemed qualified for the position by the experts will be invited to an interview. The selection committee may ask the applicants to give a public trial lecture.

7 Appointment

The selection committee makes an appointment proposal to the tenure track committee and further to the dean. The dean then makes a proposal to the rector on filling the position or leaving it vacant. The proposal shall be based on the merits presented by the applicants, expert statements, possible trial lectures and other related matters.

The evaluation of the applicant's qualifications takes into account scientific publications and other research results with scientific value, pedagogical expertise, teaching experience, teaching-related merits, a trial lecture if needed, the number of supervised dissertations, and management and leadership skills. In addition, the evaluation takes into consideration the

applicant's activity in the scientific community, success in raising research funding, scientific work abroad and international positions of trust.

The rector decides either to appoint an applicant or to leave the position vacant.

The appointment proposal may be made or let lapse even if all of the experts have not submitted their statements, provided that the time limit for the statements has expired, at least three experts have submitted their statements, and the impartial treatment of the applicants is not compromised by doing so.

After the rector has made the appointment decision, an employment contract is concluded with the appointed person. If no employment contract is concluded, the rector may, based on the proposal by the dean, make a new decision and appoint another applicant. The rector may also leave the position vacant. When the employment contract is concluded with the person appointed, the final decision is made known to all applicants.

Tenure track appointment criteria

All the positions below require a doctorate in an applicable field, a research field that fits the LUT strategy (see LUT Strategy 2030), a goal-oriented plan for the position in question, teaching experience and an up-to-date account of teaching merits (teaching portfolio).

In 2022, LUT joined the international Agreement on Reforming Research Assessment, which emphasises qualitative assessment in appointments to specialist positions and in promotions. This is highlighted especially in the evaluation of peer-reviewed scientific publications. We require high-level publications. The quality of publications is evaluated based on their content, such as novelty and impact. High-level publications have also passed a high-level peer review, where only the best manuscripts are accepted for publication. In the tenure track criteria below, we apply the classification of the Finnish Publication Forum (JUFO) as a guiding indicator of high-level publications (ratings 2 and 3), but applicants always select their best publications for a qualitative evaluation by experts.

In international recruitments, the evaluation must take into account that applicants from outside of Finland and Europe may not have been involved in Finnish or European research projects. Such applicants are evaluated in terms of their success in acquiring competitive funding through their own national channels or through international ones. Different career paths are also taken into consideration especially when practical experience is required. Only in promotion and tenure reviews can the same criteria be applied to international and Finnish persons.

The following qualifications are to be considered in the recruitment of researchers for different levels:

Assistant professor:

- Scientific publications in journals with a national Publication Forum rating.
- Contacts with one's own international scientific community.
- Potential to take part in the acquisition of external funding in the research group and apply for post-doctoral researcher posts of the Research Council of Finland.
- Potential to take part in teaching and the supervision of final theses.

Associate professor:

- Successful publication history after the doctoral defence, target of three publications a year with a national Publication Forum rating.
- Proof of participation in international cooperation.
- Successful acquisition of external funding and acting as, e.g., a project manager in externally funded projects.
- Applying for post-doctoral researcher posts of the Research Council of Finland.
- Participation in the supervision of doctoral students.
- Participation in the commercialisation of research results.
- Participation in teaching, the development of teaching and the supervision of final theses.

Full professor:

- Proof of the successful performance of duties

1. Scientific research

- publications: target of three publications a year with a national Publication Forum rating; emphasis on recent years' publications
 - supervised dissertations: approx. one doctorate a year
 - other scientific publications, such as books and chapters
 - citations
 - important keynote/plenary presentations and scientific awards
 - editorial work in scientific journals
2. Academic teaching experience
 - high-quality education proven in different ways; e.g., feedback received
 - up-to-date teaching portfolio
 - development of teaching modules
 - supervision of final theses
 3. Academic leadership
 - establishing and heading a research group
 - other leadership experience and feedback received
 4. Acquisition of external funding
 - EU, ERC, Research Council of Finland, and Business Finland
 5. Work in the scientific community
 - international scientific societies and expert advisory duties
 - duties influencing the scientific community
 6. Societal impact
 - visibility in societal dialogue
 - corporate funding and external funding not referred to in point 5 above
 - professional experience beyond universities
 - innovations, patents, collaboration with companies (e.g., board memberships)
 - activity in the university's stakeholder groups