

# TRAINING RESEARCHERS FOR THE FUTURE

EIFL ADVANCES OPENNESS IN SCIENCE AND RESEARCH

Early career researchers at Kaunas University of Technology in Lithuania.  
*Photo by Jonas Klemanas.*

“Open science expands our capabilities, allows us to move faster and to do more. I have already found useful and necessary materials from other researchers in open repositories.”

– DR DAIVA ZELENIKIENĖ, ASSOCIATE PROFESSOR AT THE DEPARTMENT OF MECHANICAL ENGINEERING, KAUNAS UNIVERSITY OF TECHNOLOGY, LITHUANIA

It is widely recognised that making research results openly available contributes to better and more efficient science, and to innovation in the public and private sectors. Open science is a research approach that opens up access to all aspects of research while the research is in process (including lab notes and methodology, raw data and analysis), and encourages collaboration among researchers. It incorporates open data (making research data freely available online) and open access (free, online access to research outputs such as articles and books or monographs).

Recently, the European Commission (EC) and other international research funders have introduced policies integrating open science principles and practices in research proposals and plans.

Opening up research means a fundamental change to the way research is done. This has generated a huge need for training to enable researchers to practise open science.

### OPEN SCIENCE TRAINING IN EUROPE

EIFL began conducting open access training in Europe in 2004, with workshops in Lithuania and Poland. Since then we have organized and delivered hundreds of training events, reaching scholars, researchers, research administrators, librarians and publishers. Our work has led to adoption of open access policies and establishment of open access repositories and open access journals at

universities and research institutes across Europe.

In 2014, we were invited to become a partner in the EC-funded FOSTER (Facilitating Open Science Training for European Research) project which trains early career researchers – mainly doctoral (PhD) students – in open science skills. The FOSTER project also trains researchers and librarians to become open science trainers so that they can train others at their institutions, and develops training resources for both learners and trainers. EIFL leads all training activities in the FOSTER project. Activities have included workshops that have attracted thousands of early career researchers, librarians and research administrators. We have also contributed to and worked with other FOSTER project partners to develop training and learning resources. The FOSTER Open Science Training Handbook, a resource for trainers, and the FOSTER Toolkit, comprising 10 online self-learning courses for students and researchers, are now being widely used in Europe and beyond.

### AN ACCREDITED COURSE FOR EARLY CAREER RESEARCHERS

Kaunas University of Technology (KTU) in Lithuania is the largest technical university in the Baltic region, capping about 50 PhD students a year. Open science is high on their agenda.

In 2016, KTU adopted an open access policy mandating open access to publications and

recommending open access to research data. Researchers deposit documents and data into an open access repository, and the library provides training in open access, open data, open science.

In 2018, KTU made it compulsory for PhD students to include Research Data Management Plans in their thesis proposals. Research Data Management (RDM) is a core component of open science. In their RDM plans, KTU's PhD students must describe how they will handle research data both during their research projects, and after the projects are completed.

“Science today is data intensive. Our PhD candidates are future scientists who must be able to work in the academic and the non-academic environment. They need to be data savvy,” said Dr Leonas Balaševičius, Vice Rector for Research and Innovations at KTU, explaining the university's decision.

In 2018, with a grant from EIFL, KTU Library developed an accredited online RDM course for PhD students. The course includes topics on open access, open data and open science, and the practical skills needed for handling research data.

KTU Library Director Dr Gintarė Tautkevičienė, who is an experienced open access trainer, led development of the course.

“We joined a webinar organized by EIFL to learn from other two universities in the Baltic states – University of Latvia and

Tartu University in Estonia – that have both started e-learning courses on research data management and open science. The librarians from those two universities shared their experiences of creating and running the courses.

“We used Moodle as a platform for our course. Students who complete the course, which is optional, will receive six ECTS credits towards their degrees.” (ECTS, the European Credit Transfer and Accumulation System, measures learning achievements and awards credits that are universally accepted by institutions in all EU countries).

“Until the course is launched, the library is offering a variety of training and support for PhD students to ensure that they produce high standard RDM plans. We have an open science help desk, and answer students' questions by email or online.

“We also receive many requests for information on research data management from the university management and more senior researchers,” said Dr Tautkevičienė.

### PRACTISING OPEN SCIENCE

Dr Daiva Zeleniakienė, Associate Professor in the Department of Mechanical Engineering at KTU is leading a team of researchers in two large international projects that are both developing new and potentially safer materials that can be used in building aeroplanes, cars and other structures. In Lithuania, the team comprises five experienced researchers, plus early career

researchers, PhD and Master's students. One of the projects is funded by the EC. "To comply with the donor policies, everyone had to be prepared for open science," said Dr Zeleniakienė.

"For my own learning, I attended workshops at my university organized by the library. To ensure that my team and the project partners are fully aware of open science and how it works, I have prepared a document, 'Guidelines on Open Access'. These guidelines cover not only EC requirements on open access to research publications and data, but also give examples, links, recommendations and other practical information, for example, about how and when to place data and other material in repositories. When we meet with project partners we organize seminars on open access.

"So, theoretically, we are prepared for open science. As soon as we have data and research results we will make our research open," said Dr Zeleniakienė.

### OPEN SCIENCE TRAINING IN AFRICA

The first EIFL open access event in Africa took place in July 2004 at a workshop in South Africa when we introduced the open access model. Since then, EIFL has been involved in over 240 open science, open data and open access training events in 20 African countries.

In response to requests from African universities for training in open science, EIFL organized an open science train-the-trainer workshop in Addis Ababa, Ethiopia, last year.

During the workshop open science trainers worked with facilitators to design open science training programmes for their institutions, using resources developed for the FOSTER project.

The trainers are now offering open science training at their universities.

Gloria Kadyamatimba leads open science

training at Chinhoyi University of Technology (CUT).

"We mainly train PhD and MPhil students. From 2018 we started offering open science training during our residence week for new students, using the course materials we developed at the EIFL workshop. We had training on open access, open data and open science. I also alert students to online courses on open science, for example, the FOSTER project training," she said.

The training attracted over 140 MPhil and PhD students in 2018, and has become a regular feature of the annual CUT residence weeks.

Ghana's Council for Scientific and Industrial Research (CSIR/Ghana), the body mandated by the government to carry out scientific and technological research for national development, began offering open science training late in 2017, and is now conducting open science training for research scientists, technologists, lecturers and graduate students twice a year.

At University of Dar es Salaam in Tanzania, the Tanzania Data Lab (dLab) extends open science training to young people outside the university, empowering them to use data in their advocacy activities.

"With open science we are saying even ordinary citizens can participate in the research process. Open science democratizes research," says Mrs Kadyamatimba.

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## FACTS ABOUT EIFL OPEN SCIENCE TRAINING

### FROM 2004 TO 2018



**250,000+**  
people trained  
in open access,  
open data and  
open science



**1,100+**  
training events  
organized and led



**69**  
countries in Africa  
Asia and Europe  
reached

### FROM 2014 TO 2018



Led training in two major European open science initiatives, the FOSTER project and OpenAIRE



Co-created useful resources

- The FOSTER Open Science Training Handbook, for trainers
- Recommendations on Open Science Training, for research support staff and librarians
- 10 online self-learning courses for early career researchers



Built a strong network of over 100 open science trainers in Africa, Asia and Europe

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