



Co-funded by the
Erasmus+ Programme
of the European Union



STEM STAFF MOBILITY REPORT
within the framework of Erasmus+ KA2 project
“INTEGRATED APPROACH TO STEM TEACHER TRAINING”

Full Name Manat Shomanbayeva

2. Place of work and position: M.O.Auezov South Kazakhstan University,
Associated professor

2. Host University, country, city: University of Helsinki, Finland, Helsinki

3. Mobility period: from December 12 till December 18, 2022.

4. The purpose of mobility: The development of the STEM approach in education and the exchange of experiences.

This mobile visit took place under the auspices of the EU funded Erasmus+ program for the purposes of # 598367-EPP-1-2018-1-SE-EPPKA2-CBHE-JP "Integrated Approach to STEM Teacher Education", STEM organized by Master of Science Una Kiviluoto and Prof. Maija Aksela, Department of Chemistry, Faculty of Natural Sciences, University of Helsinki, Finland.

At the University of Helsinki, I was at the Kumpula Campus, designed for research and teaching in the exact natural sciences.

The Kumpula campus is the science campus of the University of Helsinki. The campus is located about four kilometers from the center of Helsinki, in the Kumpula area. The Kumpula campus includes three buildings: Chemicum, Exactum and Physicum.

The Kumpula Campus is one of the largest science competency clusters in Scandinavia. It offers education leading to Bachelor of Science, Master of Science and Ph.D. The campus has eight - seven Finnish and one international - undergraduate programs, as well as 12 international master's programs. Teachers of mathematics, physics and chemistry are trained here.

During the visit, I took part in a lecture tour at the University of Helsinki. I also spoke with university faculty, students, and other university staff.


At the University of Helsinki, there are opportunities for motivated students to excel in science and technology, enter the technology field and succeed: motivation for engineering and science and technology careers; access to laboratories where experiments are carried out and production tasks are solved to gain experience and practice; lack of barriers limiting career and professional growth; advanced knowledge in science, technology, engineering and mathematics.

Studied STEM technologies (digitized museum exhibits and e-books, etc.) on the basis of museums, libraries, galleries, and other public spaces, to which there is free access to all interested persons.

The following issues were noted at the seminar (Helsinki University): training of specialists with general STEM literacy and general skills of problem-oriented

thinking, that is, those who have digital and social competencies to set and complete tasks in any field and professional field (in medicine, ecology, psychology, IT, pharmaceuticals, nanotechnologies, aircraft industry and others spheres).

In conclusion, I would like to say that the University of Helsinki made a strong impression on me. The laboratory where the classes were held was very well equipped. The university maintains links with schools, shares knowledge and equipment with them. There were 15 students and 3 teachers in the COVID-19 testing simulation class. The teachers are very well trained. The students listened very carefully. I also really liked the workplaces of teachers in the laboratory and in lecture halls. Teachers come to the classroom, connect their laptops and play the material for classes on the SMART board. The topics of the classes were as close as possible to life situations. We can say that this is the best way of interdisciplinary connections in the classroom, i.e. applying the STEM approach to conducting classes. There is no doubt that the University of Helsinki is one of the best in Europe.

Participant  Manat Shomanbayeva


Oona Kiviluoto
Project planner
University of Helsinki
LUMA Centre Finland
oona.kiviluoto@helsinki.fi
tel. +358 2941 50672



Co-funded by the
Erasmus+ Programme
of the European Union





Co-funded by the
Erasmus+ Programme
of the European Union



UNIVERSITY OF HELSINKI



LUMA CENTRE FINLAND

16 December 2022

This is to certify that Shomanbayeva Manat from M.Auezov South Kazakhstan University, Kazakhstan, has taken part of the Staff mobility under ERASMUS+ KA2 project Integrated approach to STEM Teacher Training at the University of Helsinki, Finland from the 12th of December to the 17th of December 2022.

This mobility visit has taken place under the auspices of the EU funded Erasmus+ action for the purposes of # 598367-EPP-1-2018-1-SE-EPPKA2-CBHE-JP "Integrated Approach to STEM Teacher Training", STEM, hosted by MSc Oona Kiviluoto and Professor Maija Aksela, Department of Chemistry, Faculty of Science, University of Helsinki, Finland.

During the visit Shomanbayeva Manat has taken part of the lectures and study visit at the University of Helsinki. She has also interviewed university teachers, students, and other members of the university.

If further information is required, we can be contacted at the details below.

Yours sincerely,

Maija Aksela

Ph.D., Professor of science education

Director of National LUMA Centre Finland

Board member of Math, Physics and Chemistry Teacher Education Program (B.Sc., M.Sc.)

Director of Unit of Chemistry Teacher Education

Director of ChemistryLab Gadolin

Department of Chemistry,

Faculty of Science

University of Helsinki, Finland

maija.aksela@helsinki.fi

Tel. +358-505141450

A member of Finnish UNESCO group



LUMA-KESKUS SUOMI
LUMA-CENTER FINLAND
LUMA CENTRE FINLAND



UNIVERSITY OF HELSINKI
Department of Chemistry



Co-funded by the
Erasmus+ Programme
of the European Union



UNIVERSITY OF HELSINKI



LUMA CENTRE FINLAND

Programme for the visit was as following:

December 12

Digital tools in STEM education, lecture, place: Chemicum room B156, time: 10.00-12.00

Research-based STEM teaching, lecture, place: Chemicum room B156, time: 12.00-15.00

December 13

School visit, high school, Liquid nitrogen ice cream, place: Chemicum room A127, time: 8.30-10.00

Becoming acquainted to the Faculty of Science and planning for the week.

Meeting with LUMA-centre Finland, place: Chemicum room B146, time: 15:15-16:30

December 14

School visit, high school, ionic liquids, place: Chemicum room B156, time: 12.00-14.20

Introduction to Machine Learning, lectures, time: 12:15 - 14:00, place: Exactum A111

December 15

School visit, 8th grade, covid-19 testing simulation, place: Chemicum room B156, time: 9.50-11.10

Distributed Data Infrastructures, lecture, time: 12:15 - 14:00, place: Exactum CK112

Elements of bioinformatics, lecture, time: 14:15 - 16:00, place: Exactum CK112

December 16

School visit, high school, Finnish-Russian school, organic chemistry, place: Chemicum room B156, time: 9.00-10.30

Visits and meetings at Faculty of Science, University of Helsinki.

Meeting with STEM students of University of Helsinki, place: Chemicum room B143, time: 15.30-17.00

December 17

Visit to Heureka science center



Co-funded by the
Erasmus+ Programme
of the European Union