



**LEARNING
BY DOING**



25/26

PHD PROGRAM

OF THE CLINICAL TRANSLATIONAL PROGRAMS

Join our high quality educational program to learn the methods of translational medicine.



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**SEMMELWEIS UNIVERSITY
CENTRE FOR TRANSLATIONAL MEDICINE**

PROGRAM SUMMARY

BASIC INFORMATION ABOUT THE PROGRAM

WHAT WE'RE OFFERING:

- Perform healthcare delivery science
- Understand the main modern clinical scientific methodologies
- Conduct independent research work
- Full career path, from basics to coordinator role
- PhD degree with high level scientific achievements



DURATION OF THE PROGRAM

4 years

COURSE DIRECTOR

Péter Hegyi, MD, PhD, DSc, MAE

ORGANISERS

The **PHD PROGRAM** is organized jointly by the Centre for Translational Medicine, Semmelweis University and the Translational Medicine Foundation.

TUITION FEES

Program fee: **20.000 €** / academic year

Application fee: **75 €** / person or **750 €** / group



INTRODUCTION

OF THE COLLABORATING INSTITUTES



SEMMELWEIS UNIVERSITY

Semmelweis University's (SU) history started more than 250 years ago in 1769. Today, SU is one of the leading institutions of higher education in Hungary and the Central European Region in the field of medicine and health sciences. At SU, our core commitment is based on the integrity of education, research, and medicine, which makes the University an internationally recognized center of excellence.

TRANSLATIONAL MEDICINE FOUNDATION

Our foundation focuses:

- Apply scientific results and innovations in healthcare.
- Facilitate data exchange between universities, hospitals, and research centers to improve multicenter research quality and efficiency.
- Help the public and professionals implement evidence-based knowledge through various platforms.
- Organize conferences and training and provide support for research services and human resource selection.

THE HISTORY

OF TRANSLATIONAL MEDICINE IN HUNGARY



The **Translational Medicine (TM)** “learning by doing” education model was launched at Hungary University of Pécs in 2016 under the leadership of Péter Hegyi. In the past five years, almost 50 PhD students and residents have participated in our programs. In this period, more than 300 high-quality publications have been published through scientific research and translational patient care initiated and supported by the **Translational Medicine Foundation**, the University of Pécs, the University of Szeged, and the Semmelweis University (*Nature Medicine*). The results have made it possible to develop and supplement a number of treatment guidelines and to immediately apply scientific results in patient care.

Semmelweis University aims to rank among the best universities in the world and recognize the importance and the high potential of translational medicine. Therefore, in 2021, this program was invited to function on a much bigger scale than before, now under the umbrella of Semmelweis University. As a result, the training at SU already enrolled more than 340 PhD students and almost 100 undergraduate research students.

THE IMPORTANCE

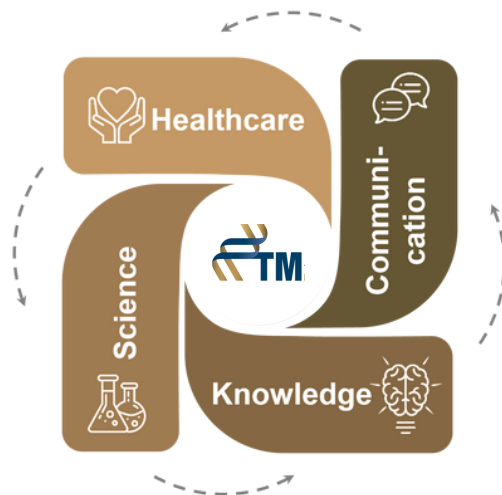
OF TRANSLATIONAL MEDICINE

The key goal of **Translational Medicine (TM)** is to transform scientific discoveries into tangible benefits for communities. This is crucial because scientific findings are currently underutilized in everyday medical practice, limiting their potential to save lives. In 2016, 1.7 million people under the age of 75 died in Europe, **and 1.2 million of these deaths could have been prevented** with effective public health interventions and better use of medical research.

Recognizing this, **Academia Europaea** launched a groundbreaking project in 2018 to speed up the application of scientific knowledge for the public good. Leading researchers, journal editors, and academic experts came together to develop the TM cycle—a model designed to close the gap between science and clinical practice. The **TM cycle** focuses on generating new scientific insights, making them accessible to healthcare providers, and communicating them effectively to the broader public. This approach aims to deliver more efficient, cost-effective healthcare—and that's where our summer school comes in.

By attending this program, you'll gain hands-on experience with the TM cycle, learning how to apply cutting-edge research directly to patient care. You'll work alongside international experts, growing your professional network and contributing to the future of global healthcare innovation. Join us to help make a real-world impact by transforming research into life-saving solutions.

Don't miss the chance to join the movement improving healthcare for everyone!



PHD PROGRAM

WHAT WE OFFER

The **PHD PROGRAM** covers all aspects of the TM Cycle. The program helps students to become critical consumers of medical research papers, to gather primary data on health issues through questioning and observation, and to conduct biomedical research. Students will gain an understanding of the planning of clinical research, including systematic reviews, patient registries and clinical trials, by designing an extended project in study groups, which are led by experienced members of the TM Centre.

THE PHD PROGRAM FOCUSES ON THE MAIN MODERN HEALTHCARE DELIVERY SCIENTIFIC METHODOLOGIES OF TM:

HARD SKILL

SOFT SKILL

BIOSTATISTICS

1. Systematic reviews and meta-analysis – we aim to introduce the essentials of meta-analyses, focusing on their role in the evidence-based medicine and the main steps leading to a meta-analysis. Questions will cover key topics, such as how to design systematic search strategies, how to read forest plots, and how to assess the validity of the findings. By attending the series of lectures, participants will learn how to read, understand, and conduct meta-analyses.

2. Patient registries – in this part we aim to introduce patient registries with their role in science, focusing on practical questions. Topics will embrace the entire process from planning a registry to publication. The general built of a registry, the role of the patient registry coordinator and the contributors in the phase of registry development will be discussed. The course will include presentations on the IT background, details on how to develop an electronic case report form, data management, ethical approval, and other roles, such as biostatisticians and clinical research administrators.

3. Clinical trials – this part of the school aims to overview the main features of experimental study designs and their role in science, focusing on practical questions. Topics will embrace the entire process from study planning to conclusions from result. Questions will cover key topics, such as the identification of study designs, the role of randomization, the effects of bias, and the judgement of cause-effect relationship.

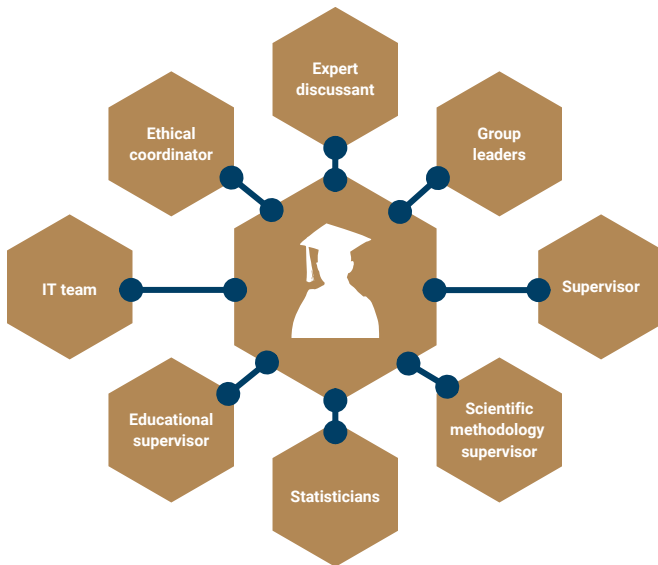
4. Biostatistics - aim of this lecture is to make the participants familiar with the basics of statistical methods used in the medical/biological sciences. Furthermore, to help the participants to interpret the results of statistical analysis more easily and to recognize possible biases in scientific literature. The lecture introduces the most commonly used statistical methods, thus the participants get acquainted with the most important elements of descriptive statistics, basic principles of hypothesis testing, parametric and non-parametric statistical methods and risks of decision errors. Furthermore, topics such as survival analysis, adaptation of questionnaires, sensitivity and specificity of diagnostic tests, and Receiver Operating Characteristic (ROC) Curve analysis will also be covered during the course.

5. Clinical pharmacology - The course will cover the fundamentals of clinical pharmacology as a translational scientific discipline focused on rational drug development and utilization in therapeutics. The course focuses on the following core principles of pharmacology: pharmacokinetics, pharmacodynamics and toxicology; drug discovery and development and clinical study protocol design. Furthermore, the course will cover advanced clinical trial concepts like medical device development, advanced therapeutical medicinal products (e.g. gene therapy), clinical trial and software development in clinical trials, and basics of pharmacovigilance. This course intends to complement the other courses of the translational research teaching program so that participants will have a broad and in-depth overview of the mainstream methodologies of clinical research.

6. Soft skills in medical research - In our PhD program, we emphasize the critical role of soft skills in medical research, offering a suite of 13 courses designed to complement the technical expertise of our students. From leadership principles that foster effective team management and ethical decision-making, to advanced communication and presentation skills crucial for disseminating complex research findings. We also delve into the intricacies of grant writing, essential for securing research funding, and introduce healthcare entrepreneurship to equip students with the knowledge to translate research into impactful healthcare solutions. This holistic approach ensures our graduates are not only adept researchers but also skilled communicators, leaders, and innovators in the medical field.

CTM STAFF - INTERDISCIPLINARY RESEARCH SUPPORT

Our centre provides the help of an interdisciplinary research support team to support the work of researchers and Ph.D. students. Continuous support is provided in a weekly basis during the so called group meetings and project meetings. Additional support can be requested from the other members of the team.



CONTINUOUS SUPPORT IS OFFERED BY

1. An **Expert Discussant** is appointed for each group. She/He is a highly experienced physician-scientist who provides help from the design of the study until the publication. She/He helps the students (1) to polish their projects, (2) to find the big picture and (3) challenges them week after week.
2. The **group leaders** are experienced physician-scientists who are well known representatives of the given field and have a record of high level research productivity.
3. The **supervisor** of each fellow is senior clinicians (expert) who raises relevant clinical questions, determines the direction of the research and bridges the gap between the theoretical and clinical work in the clinical PhD program. These tutors continuously lead the research work of the fellows during the whole program.
4. **Scientific methodology supervisors** (SMS) are a methodologist who has experience in designing and carrying out translational research projects and provides methodological support in various aspects of science including meta-analyses, patient registries, and clinical trials.
5. **Science methodology advisor and expert** (SMA and SME) are highly experienced methodologists who are responsible for the development of the learning material, for the SMS group, and provide the coordination for the different scientific methods, e.g. meta-analysis coordinator
6. **Biostatisticians** are appointed to each group to provide valuable help for the statistical work of the project.

ADDITIONAL SUPPORT

- 1. Educational supervisors** are experts in the various fields taught through courses to the fellows. Such courses include meta-analysis, patient registry, clinical trials, biostatistics, data handling, and clinical pharmacology. Statisticians are appointed to each group to provide valuable help for the statistical work of the project.
- 2. IT team** continuously provides help in the development of the electronic case report forms. In addition, they will help test the electronic interface and ensure the coordination of maintenance.
- 3. Ethical coordinator** helps with the process of ethical licensing, obtaining, preparing and submitting the documentation required for ethical approval to the relevant authorities. Consultation with the principal investigator during the process.
- 4. Soft skill trainers** provide education regarding the art of scientific communication and networking.

ADDITIONAL ACTIVITIES

Three clubs were founded to provide students with the chance to relax after meetings. Sports, Art, and Social clubs organize different activities based on interests. The sports club organizes weekly running, swimming, and squash, while the art club offers programs like concerts and exhibitions. Occasionally there are different themed social evenings organised by our social club.

OUTCOMES OF THE TRAINING

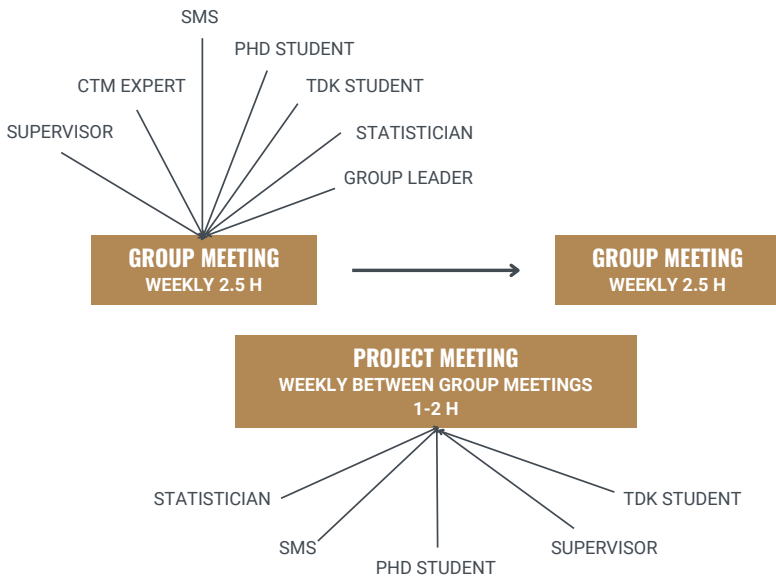
- Participants will be able to understand the concept of healthcare delivery science as part of the translational medicine cycle
- At the end of the training, participants will learn the main points of setting up a patient registry, initiating a clinical trial, or conducting a comprehensive systematic review with meta-analysis.
- Critically appraise clinical research studies using a systematic approach.
- Define the basic knowledge and skills required in translational research.
- Grow the professional international network of translational researchers.
- PhD degree with high-level scientific achievements
- In addition, participants will gain presentation skills, debating skills, language skills, and organizational skills.



SCHEDULE AND CLASSES

During the training period, there will be **regular and periodic meetings**. In addition, the training structure differs between the training years. The curriculum includes e-learning materials and on-site meetings, while the project discussions are held in in-person meetings and using online platforms as well. **The first year focuses** on conceptualizing and starting the projects necessary for the PhD. For this, in the first year, we focus on the main methodologies weekly. First, we organize group meetings for students with a similar field of interest, including their supervisor. Second, in the first part of the first year, regular courses are organized, generally with e-learning followed by a practical course week. The third part of the week is represented by the project meetings, where we focus on particular projects discussed with the project team.

Starting from the second year, these meetings will be organized on a biweekly basis, mainly focusing on patient enrollment in prospective studies or finishing up the started projects. To ensure that everyone achieves the set milestones, **regular audits are organized**.



GROUP MEETINGS

The main structure of the program is represented by the group meetings. Student in the program are grouped according to their scientific fields. Currently, we have groups based on the following topics: dentistry, gynecology, urology, cardiology, intensive care medicine, neuropsychiatry, orthopedics and traumatology, pediatrics, gastroenterology, endocrinology, COVID-19 and infectious diseases, pharmacology, and others.

Each group includes 7-14 students, their supervisor, and project students, on the other hand the centre allocates 1-2 SMSs, a statistician and an expert discussant to the group.

During the first year, each group has a meeting each week in a pre-specified day and hour for the year. In these meetings each fellow presents his/her progress during the previous week and the group jointly discusses the scientific questions, presentations and the progresses. Starting from the second year, following the same group structure, there are pre-specified monthly meetings with the same purpose.

REGISTRY AND CLINICAL TRIAL MEETINGS

Our very dedicated registry and clinical trial coordinator group organizes periodical meetings, where project groups can present their registry and clinical trial initiation and analysis plans. Each meeting is held periodically, on a pre-specified date, separately for each academic year.

PROJECT MEETING

The individual projects are also weekly managed by small study groups which consist of at least the junior fellow and a senior fellow, the tutor, the biostatistician and, if necessary for the project, an expert specialist. The project meetings are lead by the SMS, dedicated to the project team. The project team contacts the SMS with any research related question, who will ensure the fastest and most accurate guidance. The projects are essentially meta-analyses, patient registries, clinical trials, and basic research projects in which the research fellow is the principal investigator (i.e. first author).

Every student will start with a systematic review and meta-analysis in his/ her research field, which should represent the literature search and the basis of the other projects like clinical trials or prospective patient registries.

COURSES

Our research fellows receive scientific and methodological education which is very intensive in the first year in the frame of weekly courses. A list of the included courses are summarized in Table 1. Most of the courses consist of an e-learning part, followed by an on-site workshop. The courses are held by members of the centre or by invited high qualified lecturers.

Courses are organized three times per week, each day for a different set of groups. During the year we follow the same weekly schedule for the groups. Course attendance is mandatory for the first year students. However, we are continuously developing our learning material. Therefore, it is highly suggested for other years as well to follow our courses. On the other hand, the Translational Medicine PhD training ensures the necessary credits to be able to attend the Complex Exam at the end of the fourth semester.

COURSES DURING THE FIRST YEAR OF THE PHD PROGRAM

DATE	COURSE/SEMINAR LECTURE
Week of September 1st	E-learning: systematic review and meta-analysis
September 8th	Practice: systematic review and meta-analysis
September 15th	E-learning: patient registries
September 22nd	Practice: patient registries
September 29th	E-learning: clinical trials
October 13th	E-learning: biostatistics
October 20th	Practice: biostatistics
October 27th	E-learning: clinical pharmacology
November 3rd	Practice: clinical pharmacology
November 10th	E-learning: advanced trial
November 17th	Practice: advanced trial
December 1st	E-learning: Excel training
December 8th	Practice: Excel trainings
January 5th, 2025	E-learning: article writing
January 12th	Practice: article writing
January 19th	Soft skill course part I: self-management
January 26th	Soft skill course part II: assertive communication
February 2nd	Soft skill course part III: effective cooperation and team-work
March 9th	Grants, research and developments
March 18th	Bioinformatics
April 6th	Introduction to basic science

MOODLE E-LEARNING SYSTEM

As a major improvement, we have built an e-learning platform that covers all the needs of the PhD training. Moodle serves as a platform for e-learning, group meetings, project meetings, project follow-up, and communication. For communication, we have separate forums for group meetings, project meetings, classes, and a general forum. On the other hand, communication with other colleagues is done using the chat function.

Website: elearning.tm-centre.org

SEMINAR LECTURES

There are a total of 8 seminar lectures planned during each year of the training. For the seminar lectures we plan to invite role model researchers with an outstanding scientific achievement. The list of lecturers will be available at the start of the program. You can see a previous seminar lecture invitation [here](#).

PROGRESS REPORTS DURING THE TRAINING

During the training, we will organize regular audits for the PhD students. In the first year, every 3 months; in the 2nd and 3rd years, every 6 months. The aim of the progress reports is to provide a conference-like environment for the students, where they can present their scientific questions and progress since the previous audit, and they will gain important presentation skills and networking possibilities.

During the progress report, students will have 8-10 minutes to present their progress, followed by an open discussion. For the progress report multiple groups are schedule for one day, therefore student can have an insight in other projects and practice multidisciplinary discussions. Watch a short summary of a previous Progress Report [here](#).

MILESTONES

The first three months are about the conceptualization of the systematic review. With the help of the group, during the group meeting, we aim to find the best research questions. During the first 3 months, students should end with the systematic search and selection of the literature.

During the next 3 months, we will concentrate on the data collection and the results. In this period, we aim to discuss the result of each project on a structured way, therefore at the end of the first 6-months students should be able to present their results of the meta-analysis.

For the meta-analysis, the next 3 months should be about the article writing; at the end of this period, the manuscript should be ready to be submitted to top journals. On the other hand, in this period the other projects of the students should be discussed. If the student has another systematic review, he/she should be ready with the literature search. If it is a clinical research question or a basic research question, the protocol of the study should be planned.

At the end of the first year, with the proper commitment, students should have two projects submitted and patient enrollment started if a prospective study is planned. Starting from the 2nd year, there will be a progress report every 6 months with the same presentation structure.

COMPLEX EXAM AND THESIS DEFENSE

Students attending the PhD training will have their Complex Exam at the end of their fourth semester (year II).

The exam will have two parts, (1) the first one will be a written test with questions from the e-learnings and courses, (2) the second will be an oral presentation of your two-year work, 10 minutes presentation followed by 10-20 minutes of discussion.

After the complex exam students will have the opportunity to prepare for their thesis defense if they fulfill the publication requirements of the CTM and Semmelweis University. Students must follow the CTM protocol during their PhD defense.

ENGLISH LANGUAGE COURSES – HAVE AND ADDITIONAL CHARGE

The training is in English. The scientific English skills of the students are developed through regular presentations, meetings, and courses. If additional language training is required the centre can provide guidance on it, however, this may have additional charges.



PROGRAM	READY FOR PHD	
	Effective Operational Proficiency (EOP)	Vantage
Goals	A2/B 1 to C1	Zero to C1
Skills to be developed	presentation skills, scientific writing, medical communication, medical terminology, discussion skills, giving instructions, negotiation skills, interpersonal skills, project management skills, event organization skills, international relation skills, intercultural skills	presentation skills, scientific writing, medical communication, medical terminology, discussion skills, giving instructions, negotiation skills, interpersonal skills, project management skills, event organization skills, international relation skills, intercultural skills
Distribution of lessons	4 x 45 min Need-Based Skill Development Lessons are scheduled twice a week: 2x90mins per week + e-learning material	(8 x 45 min English for General and Medical Purposes) + 4 x 45 mins Need-Based Skill Development Lessons are scheduled for every day:4x90 + 1x180 mins per week + e-learning material & individual consultations if needed
Length of studies	Sep - May 34 weeks	Sep - May 34 weeks
Total number of lessons	140 x 45 min classes	(280 + 140) x 45 min classes
Entry level of knowledge	C1	B2
Included in the price	teaching material, audio material, regular assessments, individualized feedback, 2 occasions of tutoring sessions per student per academic year, pronunciation classes held by a native speaker	teaching material, audio material, regular assessments, individualized feedback, 2 occasions of tutoring sessions per student per academic year, pronunciation classes held by a native speaker

CAREER PATH MODEL

Besides "learning by doing", "learning by teaching" is our other main motto.

The CTM offers an outstanding seven-step progression system for our students.

Firstly, the beginning of the education process starts with a **Scientific Methodology Learner (SML)** (also known as TDK student) position, where regular attendance (above 75%) at group and project meetings is required. It comes with great benefits such as participation in research, direct recruitment opportunities, co-authorship, and an MD-PhD option for the following year.

Moving on to the next level, students become **Science Methodology Practitioners (SMP)** (also known as Year 1. PhD students). This position provides the benefits of participating in the course and getting free help such as statistician support, provision data management background, and IT support. SMPs will also join a continuously growing international network.

Entering the second year of the PhD program, students are able to progress and move on to the next step in the seven-step progression system, which involves mentoring Year 1 PhD students. Students become **Science Methodology Supervisors (SMS)**, which comes with an expectation of being the winner of the month (automatic), Student Excellence Award, and appropriate motivation. The benefits that come with being an SMS are providing a job within the CTM as well as a great number of co-authorships.

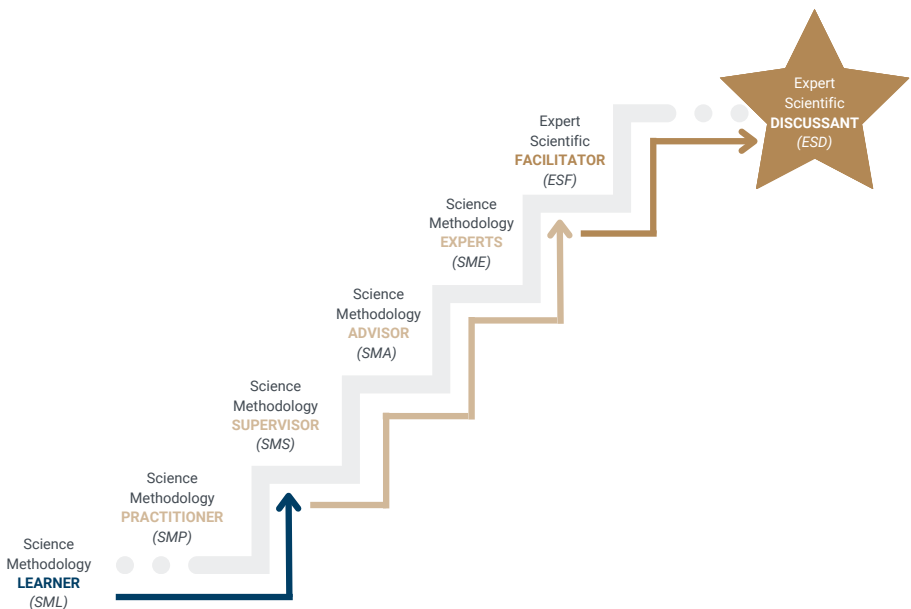
Step four in the progression is **Science Methodology Advisor (SMA)**. The conditions to become an advisor are passing a complex exam, availability of first-authored articles required for own PhD, and a suitably motivated attitude. The higher the expectations, the bigger the benefits get. Those in an SMA position will get the possibility to work in the EUROSTAT database along with Academia Europaea members, and lastly, a co-authorship will come with the position.

The last three steps are for highly dedicated members of the CTM staff. **Science Methodology Experts (SME)** are students who reached step five due to a special invitation. The following benefits are provided for this position. Leadership position where the student will have the possibility to participate in soft skill training, scholarships for training abroad, access to EUROSTAT database and AE membership, co-contracting, and advanced statistical training. Last but not least, it comes with the benefit of admission to the MTA Youth Chapter and with a nomination to the Young Academy of Europe.

Following the expert level, one can join the **Expert Scientific Facilitators (ESF)** group. Members of the ESF group must attend regular group meetings and progress reports, and they must give lectures for the Year I and II students. ESFs are also expected to initiate collaborations, participate in the recruitment of new members, and initiate innovative solutions in the PhD education. This minimum requirement includes the preparation of the PhD thesis. As a result, ESFs will have the possibility to get access to international training, unique collaborations, and memberships.

The last step in the seven-step progression system is joining the **Expert Scientific Discussants (ESD)** group. A PhD degree is mandatory for this position. ESDs must attend regular group meetings and progress reports, and they must give lectures for PhD students. Besides ESF tasks, ESDs are required to review PhD thesis and help students prepare for the PhD defense. Work comes with important rewards. Those in the ESD group will get help in initiating their own research groups. SMEs, ESF, and ESD will be nominated as assistant lecturers or assistant professors.

Every month, **CTM awards the best-performing** student and supervisor in each year level. In addition, the best group, SMS, statistician, and project student in the first year is also awarded. All awards are based on availability, effort, and creativity. In addition, for SMSs, coordination skills and methodological knowledge are also taken into account. For students, the level of presentation skills is a separate criterion, and the activity and contributions of group leaders in meetings are assessed separately.



APPLICATION

HOW TO JOIN OUR PROGRAM

CLICK HERE
OR SCAN THE
CODE TO APPLY



TARGET AUDIENCE

Those having a University diploma (in a bicyclic higher education Master - MSc degree) and students who have enrolled in the final year of a master's degree at medical, dental, pharmaceutical, or other faculties expect to acquire an MSc diploma no more than six months later.

Good English communication skills are recommended (minimum B2 levels; see details [here](#)).

TUITION FEES

Program fee: **20.000 €** / academic year

Application fee: **75 EUR €** / person

(Different rules and conditions applied for the Hungarian government-supported PhD students)

in case of group registration larger than 10 participants, **750 €** / group

Costs include:

E-learning materials, IT support, data management, statistical support

Accommodation:

The center can help find your accommodation. However, the program fees do not cover the accommodation costs or any other self-related expenses.

Language courses (optional):

- Effective Operational Proficiency program: 140 lessons, goal: C1 to C2; **5.000 €**
- Vantage program: 420 lessons, goal: B2 to C1; **15.000 €**

Start of the program: **August 25, 2025**

Duration of the program: **2+2 years** (exam after the first 2 years)

REQUIRED DOCUMENTS

For this course, you are required to upload the following documents when applying:

- Motivation Letter
- CV

Registration with proof of registration fee payment must be submitted by **May 18, 2025**. In case of transfer difficulties electronic certificate is acceptable.

PAYMENT

After completing the application form, you will be contacted by our staff, and we will provide the payment information.

IMPORTANT DATES

The interview period will be between **July 1-3, 2025**

Acceptance notification will be sent by **July 6, 2025**

Program fee payment: latest by **July 18, 2025**

RESPONSIBILITIES OF THE CENTRE

The Centre will provide access to the training materials in case of successful recruitment, but this does not cover the technical requirements for access, particularly a stable internet connection and computer equipment. The application fee covers the costs of the application procedure, and the Centre does not undertake to reimburse the costs of unsuccessful applications. Students who are successfully admitted will be offered a training contract by the Centre. Hungarian law will apply to the application process and the training as a whole.



CONTACT US

FOR MORE INFORMATION

Should you need any further information, please do not hesitate to contact us! Also feel free to check out our and our partner's online content as well.

ORGANIZATION NAME

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OUR WEBSITES

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YOUTUBE CHANNEL

Translational Medicine Foundation

NATIONAL ACADEMY OF SCIENCES

edu-sci.org

ACADEMIA EUROPAEA

ae-info.org





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