



Health Sciences e-Training Foundation

Created in 2006

HSeT

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1066 Epalinges, Switzerland

<https://hset.org>

HSeT and the Pandemic

*Tell me and I forget
Teach me and I may learn
Involve me and I learn*
Benjamin Franklin

Health Sciences e-Training Foundation is a Swiss non-profit organization created in 2006 that works with a network of leading experts from all over the world to develop online training programs in health and life sciences.

The concept

Training programs developed by HSeT are delivered through **institution-specific websites** that are designed to enrich an existing curriculum or build a new curriculum, that can be accessed by trainees in a self-directed way or in combination with traditional face-to-face teaching.

Customized inLine Training (COLT)

HSeT provides training programs tailored to the needs of specific groups of learners as defined by the institutions themselves. COLT integrates novel pedagogical approaches and tools to map student's individual progress at every step.

Switching to full online teaching

HSeT advocates blended e-learning modalities. However resorting to full online teaching permitted the continuation of all programs during the pandemic.

Flagship programs in 2020



International Master of Vaccinology (IMVACC)
(University of Lausanne)



Postgraduate training in Translational Medicine and Biomedical Entrepreneurship (TMBE) and Artificial Intelligence in Medical Imaging (AI in MI)
(University of Bern).



Advanced Studies in Translational Nephrology
(University of Bern)

Additional programs in 2020

- 14th Institut Pasteur Vaccinology course (16-28 participants from all over the world)
- 1st Institut Pasteur Biobanking course (10 participants from Asia, Africa, South America and Europe)
- 6th UNIGE Master of advanced studies in toxicology (MASTOXICO, 21 students from all parts of Switzerland and several European countries)
- 1st UNIGE CAS in laboratory medicine. (FAMH curriculum, 22 students)
- 8th University Cheikh Anta Diop, Dakar (Clinical Biology course for MDs and pharmacists, 37 participants)
- Mauritius University Bachelor in the MD programme based on the curriculum of the Faculty of Medicine of Geneva curriculum (since 2014, 20-30 students /year)
- Bachelor of Medicine for the 2nd and 3rd year students (Faculty of Medicine, University of Geneva)

International Master in Vaccinology

University of Lausanne/SVRI

IMVACC (International Master of Vaccinology), initiative of the Swiss Vaccine Research Institute (SVRI) (G. Pantaleo & Fabio Candotti) and the HSeT team, is proposed by the University of Lausanne which offers 60 ECTS and a diploma. IMVACC consists of 4 web-based modules with tutoring during the 1st year and a master thesis during the 2nd year which can be carried out in an academic or an industrial organisation (<https://imvacc.org>).

Students

Since inception in 2016, 34 students have been enrolled in the Master program. Most of the students have come from low and middle income countries as depicted in the Figure. 14 students have been supported by fellowships from the South African Medical Research Council (MRC) and 7 from the European African program EDCTP. 10 students paid the 20'000 CHF fees.

Austria	1		Morocco	1	
Cameroon	1		Mexico	1	
Germany	1		South Africa	15	
India	2		Switzerland	4	
Kenya	2		Tanzania	1	
Madagascar	1		Uganda	4	

The four students who started the MAS in 2016 have successfully defended their master thesis and received the UNIL diploma. One of them, **Nicolas Peyraud**, from Médecins sans Frontières (MSF) Switzerland, published his master thesis entitled "Potential use of microarray patches for vaccine delivery in low- and middle-income countries" in the Journal Vaccine. Nicolas has joined the HSeT team to contribute in the development of learning activities based on his extensive experience in humanitarian pediatric medicine and vaccination within the MSF organization. The thesis **Luc Gwom**, from Cameroon, was entitled "Challenges and opportunities in introducing HPV vaccine in Cameroon and other African countries". He benefited from a collaboration with the WHO. The thesis of **Rodrigo Romero Feregrino** was entitled "Ten years of experience in the acquisition of vaccines for the Expanded Program on Immunization (EPI) in Mexico". The thesis of **Bontle Motloun** was entitled "A cross sectional study into the expanded programme on immunization vaccine (EPI) cold chain management among healthcare workers". The conclusion of her study was that there were major dysfunctions in cold chain management.

Excerpts from the graduates' experience with the IMVACC program



The IMVACC course offered me the perfect opportunity to master my knowledge in vaccinology in order to apply them later into my humanitarian medical practice. ...I do not remember how many times I had the opportunity to grab my phone, text a message and directly have a "Whats App" call with a teacher to speak about a specific topic from the course. This is what makes the difference with several master courses followed by hundreds of students. Nicolas Peyraud.

The IMVACC program was well organized and all the professors involved were very helpful. I have learnt so many new skills during the program that enabled me to work on a broad range of issues related to vaccines. The set of skills and knowledge acquired from the IMVACC program has strongly impacted my professional life as the quality of the work I now deliver is both appreciated and highly demanded. I have already used these skills to provide technical support to several countries in Africa through my work with NGOs and WHO. Luc Gwom.



Current situation

All students of class 2018, 2019 and 2020 have completed the 1st year and have successfully passed the modules and final exams. They are all actively now working on their master thesis projects, under the supervision of a local thesis director.

MAS of translational medicine & biomedical entrepreneurship

SITEM INSEL University of Bern

HSeT has continued its collaboration with sitem-insel School. In addition to the MAS/DAS/CAS in **Translational Medicine and Biomedical Entrepreneurship (TMBE)** and the CAS in **Artificial Intelligence in Medical Imaging (AI)** the sitem Center launched a new MAS in **Medical Device Regulatory Affairs and Quality Assurance (MDRQ)** with students from Switzerland, the UK and Malaysia. The first feedback has been very positive.

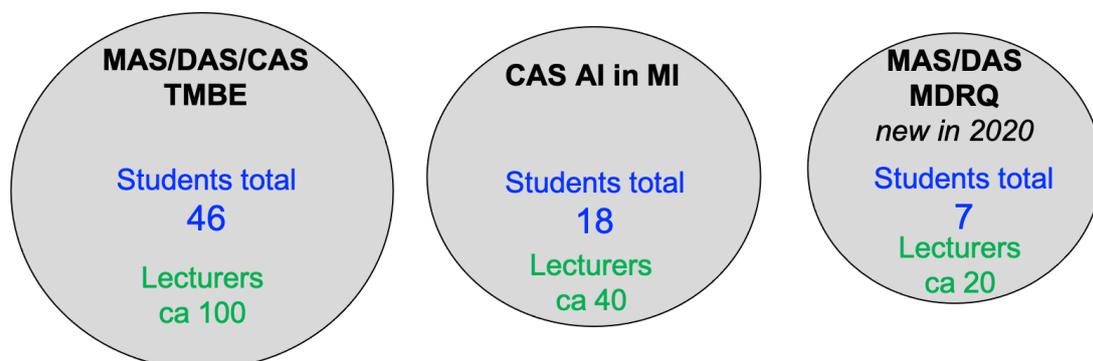
For the first time, the sitem-insel School organized a **scholarship award competition**. Out of the numerous applications received, 10 researchers with excellent track records from the University of Bern, the ETH, the University of Geneva, the University of Basel, the University of Mainz, and two start-up companies, namely MachineMD and Retinai, were awarded scholarships.



Left panels: Symposium on AI in Medical Imaging in the framework of the CAS in AI in Medical Imaging. Right panels: Kick off sessions of the programs in Translational Medicine and Biomedical Entrepreneurship and in Medical Device Regulatory Affairs and Quality Assurance

Students

Despite the Covid situation the sitem School was very successful in the recruitment of new students for all three programs, i.e. 12 for the TMBE, 11 for AI and 6 for MDRQ. Furthermore, thanks to the blended learning format the sitem-insel School managed to continue its teaching activities as planned. The on-site sessions could be easily organized and recorded thanks to HSeT's IT infrastructure. In response to the Covid situation, the sitem-insel School organized its traditional AI symposium as an online event only. Thanks to this format, more international speakers and attendees participated in the event than in the previous symposium. The talks and the virtual coffee breaks with the speakers were highly appreciated.



Number of students and lecturers of the various study programs of the sitem-insel School. TMBE: Translational Medicine and Biomedical Entrepreneurship, AI in MI: Artificial Intelligence in Medical Imaging, MDRQ: Medical Device Regulatory Affairs and Quality Assurance

Advanced studies in Translational Nephrology

University of Bern

Objectives of the program

The program provides to graduates in medicine and life sciences relevant knowledge and insights into the basics of nephrology and kidney pathophysiology. Participants will acquire and strengthen basic knowledge in pathophysiology of kidney diseases.



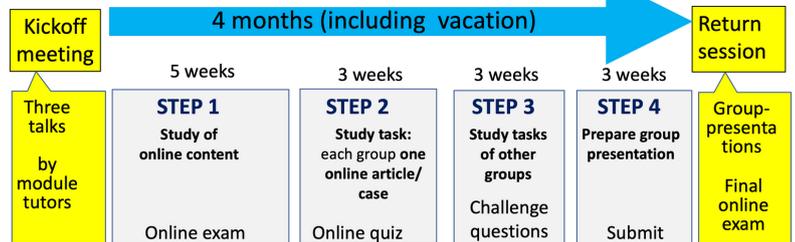
How it started

Starting 2012, HSeT developed a blended e-learning course in Translational Nephrology (TN) commissioned by the Swiss consortium NCCR Kidney.CH for the education of its PhD students and postdocs. This TN course is now recognized as a CAS/DAS of the University of Bern and is open to national and international graduates. This advanced study program started officially in March 2017. A new cycle of six modules lasting two years started in March 2020. HSeT is responsible for the e-learning courses of the program.

Six modules of the program

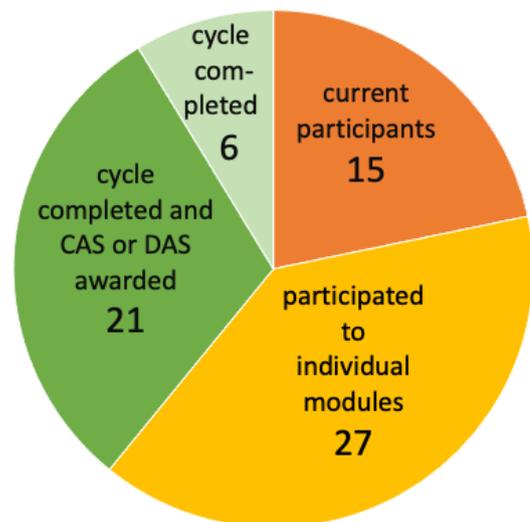
- Salt, Water and Hypertension
- Acid-Base Homeostasis
- Calcium and Phosphate
- Oxygen Signaling and Cancer
- Metabolism and Kidney Function
- Inflammation and Immunology

Example of a module timeline



The modules consist of face-to-face and/or online kick-off and return sessions with lectures and group presentations and an e-learning part during which participants review reading material, take quizzes, read key articles, explore clinical cases and prepare individual and team work presentations. In order to minimize traveling for face-to-face sessions, the end of a module corresponds with the kick-off of the next module.

Students



Excerpt from the students' evaluation questionnaire

*I find that the new timetable and slimmed down content is considerably better. Having it spread out in smaller chunks makes one spend more time on the individual task and prevents information overload, and it also forces repetition, which is key to learning. Quality over quantity... **Personally, I don't think we missed out much for having the module 100% online.***

The NCCR Kidney.CH will end in 2022, In the future, it will be crucial to attract PhD students and postdocs working on kidney-related topics and MD's working in nephrology . Currently three MD's not associated with the NCCR are taking the course. It is planned that a new «Kidney Center of Competence" of the University of Zurich will take the academic lead of the TN course after the end of the NCCR.



HSeT organization

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- Amadou Sall, Institut Pasteur, Dakar, Senegal
- Dominique Sprumont, University of Neuchâtel
- François Verrey, University of Zürich

HSeT Team

- Pascale Anderle, Translational medicine
- Nathalie Debard, Immunology, Microbiology
- Jean Gruenberg (SAB member), Cell Biology
- Jozsef Kiss (SAB member), Neurosciences
- Jean-Pierre Kraehenbuhl, Immunology, Vaccinology
- Ivana Knezevic (SAB), Vaccinology
- Patrick Linder, Microbiology, Molecular Medicine
- Li Long, Computer Science
- Claude Meric, Vaccinology
- Alain Meystre, Infographic design
- Walter Reith, Immunology, Pathology
- Bernard Rossier, Nephrology, Toxicology
- Michelle Rossier, Laboratory Medicine, Hematology
- François Verrey, (SAB member) Nephrology



Pascale Anderle



Nathalie Debard



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