



Communication

# The International Master of Advanced Studies (MAS) in Sleep Medicine of the Universities of Bern and Svizzera Italiana

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**Abstract:** Introduction: Sleep–wake circadian disorders (SWCDs) are very frequent and linked to major negative effects on the body, mental health, the brain, and on occupational and societal health. The prevention, diagnosis, and treatment of SWCDs and the promotion of sleep health require the sufficient education of general practitioners, specialists, and other health professionals. Unfortunately, education at pre- and postgraduate level is insufficient in most countries across the world. Aims and methods: This article describes the historical context, basic considerations, and methodological approach for the creation of the International Postgraduate Sleep Master by the University of Bern and Svizzera Italiana. Results: The postgraduate Master, which was launched in 2017, is a part-time, flexible course, taken over 2 ½ years, which targets health professionals, scientists, and technicians. After an initial introduction, which is the same for everybody (“common trunk”), the course can be individualized. The 12 modules of the Master include online lectures, schools, internships in a sleep center (in one of our 15 partner universities), case discussions and interactive sessions with students and internationally recognized experts from over 20 countries across the world, and culminates with a Master thesis. The program covers sleep–wake circadian biology; the management of SWCDs; disturbances of consciousness and sleep-related epilepsies; novel approaches in sleep medicine (e.g., clinical trials, telemedicine, data science, artificial intelligence); and topics of increasing relevance (e.g., neurodegenerative disorders, gender and diversity, sleep health, new technologies, artificial intelligence, professional and societal implications). Students are encouraged to also take “crash courses” in preparation for the national, European, and World sleep examinations. Conclusion: The Postgraduate University Sleep Master of the Universities of Bern and Svizzera Italiana offers a unique part-time, (mainly) virtual opportunity to acquire state-of-the-art knowledge, skills, and professional experiences to prepare for a clinical or scientific career in sleep medicine for physicians, scientists, and other health professionals.

**Keywords:** sleep; Bern; USI; Switzerland; education; teaching; postgraduate; master; university; schools



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## 1. Introduction

Sleep–wake circadian disorders (SWCDs) and sleep loss represent a major burden for our society in terms of health, financial, and societal consequences. Importantly, sleep–wake disorders have a massive impact on the quality of life of patients and those living around them [1]. Sleep loss affects over 25% and SWCDs over 30% of the population [2,3]. Swiss data confirm the high prevalence of such sleep complaints as insomnia (36% of 2432 subjects) and sleepiness (25% of 4901 subjects) [4,5]. Importantly, SWCDs and sleep loss increase the

risk of medical (e.g., metabolic, cardiovascular), neurological (e.g., neurodegenerative), and psychiatric disorders and negatively modulate their course [1,6,7].

Considering the frequency and consequences of SWCDs, it is of paramount importance to promote more and better prevention, diagnosis, treatment, and research of SWCD. These different activities have as pre-requisite an adequate education in SWCDs and sleep health [8].

However, education in sleep medicine has been, until today, generally insufficient at both pre- and postgraduate levels; this is in medical schools, other schools for health professionals, in residency programs, and at postgraduate level. A multinational survey including different medical schools worldwide revealed that the average amount of time spent in sleep education is less than 2.5 h [9]. The median teaching time in UK medical schools increased in the last decade from only 15 min to 1.5 h [10]. Education in most residency programs, including neurology, is often either nonexistent or insufficient [11]. In fact, with only few exceptions (e.g., the Swiss Residency Program in Neurology), sleep medicine fellowships are either absent or poorly represented in most specialty programs across the world or (e.g., in the USA) insufficiently attended because they are considered non-attractive [12].

As a consequence of the insufficient education in sleep medicine at all levels, SWCDs are not (or insufficiently) addressed by general physicians and (most) specialized physicians and health professionals. The creation of a University Postgraduate Master in Sleep Medicine in 2017 was the concrete response to the unmet needs in education at postgraduate level.

## 2. The Master of Sleep Medicine: Foundation and First Two Cycles (2017–2022)

The creation of the MAS by the Universities of Bern and Svizzera Italiana (USI) was preceded by the organization of educational events including the Bernese Sleep–Wake Days (since 1997), three International Narcolepsy Meetings (1998, 2004, 2009), and the First Sleep Alpine Summer School (2011, lasting for 6 days) [13] (Figure 1).



**Figure 1.** The flyers of the 1st Alpine Sleep Summer (2011) and the 1st Sleep Science Winter schools (2018), which created the basis for the foundation of the MAS in sleep medicine in 2017.

The high interest in the latter event led to the subsequent Sleep Alpine Sleep Schools in Ljubljana, Slovenia (2013), and Lugano (2015). In 2018, a First Sleep Science Winter School was then organized in Wengen, Switzerland to also extend the educational offer to scientific contents (Figure 1).

The European Sleep Foundation (ESF, <https://www.europeansleepfoundation.ch>, accessed on 1 March 2024) was founded in 2017 with the mission of promoting (1) knowledge about the mechanisms and determinants contributing to disorders of sleep and wakefulness; (2) the discovery of new approaches to optimize sleep-related health in patients and the general population; (3) the interactions between different health professionals, scientists, and caregivers involved in sleep and related fields; and (4) the education of scientists, physicians, and the general population.

To realize its mission, the ESF has planned from its foundation the creation of a Master in sleep medicine. The Master of Advanced Studies (MAS) in Sleep Medicine (Further information on the MAS and Crash Course in Sleep Medicine can be found on [www.asc.unibe.ch](http://www.asc.unibe.ch)) offers a unique program that provides advanced medical and scientific insights with sleep–wake physiology, chronobiology, and sleep medicine. The program was created by the University of Bern and the Università della Svizzera Italiana in close collaboration with the Inselspital (University Hospital) in Bern, the Ospedale Regionale in Lugano (in Ticino/Southern Switzerland), and 15 international partner Universities (Università Vita-Salute San Raffaele, Italy; Université Grenoble Alpes, France; University of Ljubljana, Slovenia; University of Freiburg, Germany; University of Tübingen, Germany; University of Witten/Herdecke, Germany; University Hospital of Liège, Belgium; University of Ghent, Belgium; Almazov National Medical Research Center, Russia; Carol Davila University of Medicine and Pharmacy, Romania; Iuliu Hațieganu University, Cluj-Napoca, Romania; FUCS University, Colombia; University of Cyprus; National University of Singapore (NUS); Tongji University, Shanghai, China).

The First Master of Advanced Studies (MAS; 2017–2020), according to Bologna's recommendations for higher education, included a Certificate, Diploma, and Master of Advanced Studies (CAS, DAS, and MAS, respectively) with basic, intermediate, and advanced lectures and workshops (e.g., summer and winter schools) in basic, translational and clinical sleep, and circadian science and medicine. Lectures were held online and workshops were scheduled during summers as in-person events in Lugano, Switzerland. A total of 17 students from three continents attended this first cycle of the Sleep Master (Figure 2).

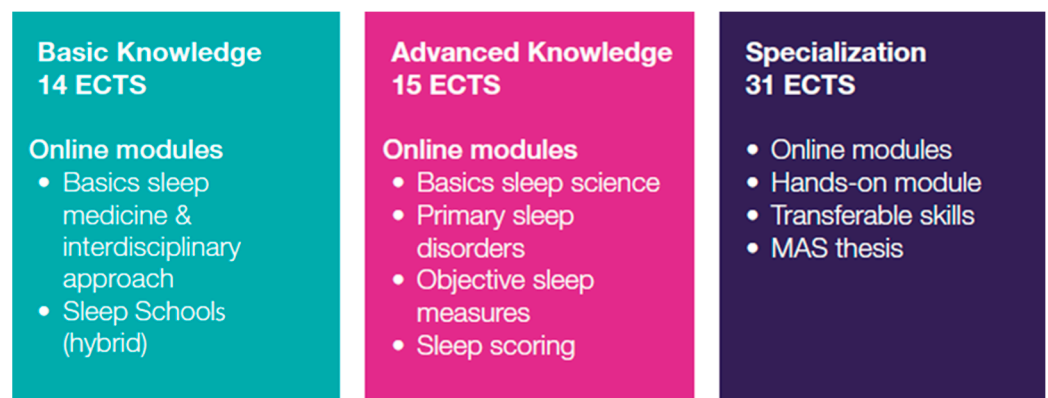


**Figure 2.** A picture of 15 of the 17 students of the 1st cycle of the Sleep Master during the kick-off event in Bern in October 2017.

The COVID-19 pandemic imposed, on the one hand, a break in the practical organization of the second cycle of the MAS and, on the other hand, reflections about the need to offer the educational program virtually. Accordingly, the second edition of the MAS in Sleep Medicine in 2021 presented many important novelties including a complete online curriculum, flexible timeline, and lecture modularization.

### 3. The Master of Sleep Medicine: The Third Cycle (2023)

The third cycle of the MAS in Sleep Medicine, which started in June 2023 with 23 international participants coming from 14 different countries in Europe, North America, and Asia, offers a further development of the educational program (Figure 3, <https://www.asc.unibe.ch>, accessed on 1 March 2024).



**Figure 3.** The MAS in Sleep Medicine encompasses three pillars. Online modules and schools (which can be attended in person or virtually) offer all participants the same information during the 1st pillar (basic knowledge), a subsequent progressive specialization in pillars 2 and 3, and a thesis at the end of the MAS (<https://www.asc.unibe.ch>, accessed on 1 March 2024).

The program aims to transfer advanced knowledge in sleep medicine and science to the next generation of clinicians, scientists, health professionals, biologists, and technicians. Through different learning methodologies, the course covers the following topics: sleep–wake circadian biology, (traditional and novel) assessments of disturbances of sleep–wake circadian functions and consciousness, and sleep health. The prevention, diagnosis, and treatment of disorders of sleep, wakefulness, circadian rhythms, consciousness, and sleep-related epilepsies, including those resulting from underlying medical, neurological or psychiatric conditions, are accompanied by case discussions and interactive sessions with top specialists from over 20 countries across the world.

Today, the MAS lasts 30 months and targets national and international academics or professionals in the health sector who are interested in acquiring an in-depth knowledge of sleep science and sleep medicine. The program is ideal for studying alongside working, as it is a postgraduate program that exploits modern self-study and digital options. The online setup offers additional flexibility for time management and geographical location to our international students from all over the world. The inclusivity of the program is also underlined by the possibility of receiving grants to attend the Master and by a reduction in fees for less advantaged countries.

The completion of the Master in Sleep Medicine requires 60 ECTS distributed over 12 modules, 8 of which are completed in self-study through online lectures and materials. In addition to the online lectures, summer schools (in person or online) with a focus on scientific and clinical topics are included as in-person and more interactive events. Finally, students are required to complete a 2–4-week internship in a sleep laboratory in any of our partner universities across the world (note that other host institutions can be proposed by the students and approved by the program committee). This internship is linked to the writing of a Master thesis on a specific topic of sleep medicine.

#### 4. The Master of Sleep Medicine: Current and Future Developments

The Master (which is directed by Claudio Bassetti, co-directed by Antoine Adamantidis, Mauro Manconi, and Kaspar Schindler, and coordinated by Felicitas Sohm) is continuously evaluated by our faculty to ensure that the contents are updated to the most recent cutting-edge literature and practice.

A first crash course was launched in 2023 (to be repeated on a yearly basis) as a new module of the MAS to prepare students for professional certifications (e.g., national, ESRS, and World Sleep Federation examinations in sleep medicine). This course consists of 30 online lectures, which are delivered by experts over one week, and covers different topics including the basics of sleep, central disorders of hypersomnolence, chronobiology, clinical assessment, sleep scoring, insomnia, parasomnias, sleep-related breathing, and movement disorders. The last round of the crash course was successfully attended this year online by students who were trained to answer questions which simulate a real examination scenario, but with the advantage of interacting with experts who explain and comment on the right and wrong answers.

In addition to the current 15 universities, new institutions will join us soon from Europe and Asia. New advanced modules on insomnia, epilepsy, sleep and epilepsy, narcolepsy (in collaboration with the European Narcolepsy Network and the Swiss Narcolepsy Network), and transferable skills will be introduced in 2024. Topics of increasing relevance (e.g., sleep and dementia/neurodegeneration, new technologies and the use of artificial intelligence, gender and diversity, sleep health, professional and societal implications) are also currently being developed.

The next in-person events of the Sleep Master will be the 8th Sleep School in Bern (in conjunction with the 28th edition of the Bernese Sleep–Wake Epilepsy Days) in November 2024 and the 9th Sleep School in Cyprus in April 2025.

The next (the fourth) cycle of the Sleep Master will start in Spring 2025.

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**Informed Consent Statement:** Informed consent has been obtained from the students depicted in Figure 2.

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