

# MASTER OF ADVANCED STUDIES IN CLINICAL MEDICINE SPECIALIZATION INFECTIOUS DISEASES AND PREVENTION AND CONTROL OF INFECTION

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## 1. Overall Objectives

The Master of Advanced Studies (MAS) in Clinical Medicine, Specialization in Infectious Diseases and Prevention and Control of Infection is a degree of specialization which corresponds to two years of infectious diseases training within the Divisions of Infectious Diseases, Pediatrics, or Prevention and Control of Infection at the University Hospitals of Geneva (HUG). Prerequisites for admission include previous training of at least 3 years in general internal medicine or pediatrics and at least 1 year in infectious diseases research, epidemiology, and prevention of infectious diseases in a university hospital or equivalent. The program has the following general objectives:

1. To provide training in epidemiology, diagnosis, treatment and prevention of all infectious diseases, as well as practical skills necessary to function independently within the field
  2. To promote a multidisciplinary integration of knowledge through proficiency with other disciplines involved in treatment, prevention, and epidemiology of infectious diseases
  3. To provide instruction on how to accurately interpret recommendations, publications, and scientific reports within the field of infectious diseases
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## 2. Eligibility for Admission

Candidates with the following prerequisites may be eligible for admission:

1. At least 3 years of training in general internal medicine or pediatrics from recognized training institutions, including 2 years in a university hospital or equivalent
  2. At least 1 year of training in infectious diseases research, epidemiology, and prevention of infectious diseases
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## 3. Length of Studies

The period for obtaining the MAS in Infectious Diseases and Prevention and Control of Infection is four semesters (or a maximum of eight semesters for candidates who opt to enroll in part-time clinical immersion).

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## 4. Study Program

The program is divided into 3 sections: (1) clinical immersion, (2) teaching of theory, and (3) an end-of-study project.

### A. Objective of Clinical Immersion

Clinical immersion corresponding to the acquisition of 90 European Credit Transfer and Accumulation System (ECTS) credits will provide the candidate with the opportunity to acquire skills and knowledge specific to the field of infectious diseases and prevention and control of infection.

#### *Specific Skills*

##### o *Clinical*

- Detailed knowledge about endemic and imported infectious diseases, including nosocomial and HIV-related infections
- Ability to conduct clinical examinations and record histories that encompass all aspects of infection
- Ability to establish an investigational plan that encompasses all microbiological techniques for differential diagnoses
- Ability to develop a treatment plan and monitor its implementation
- Knowledge of individual and societal measures for prevention of infectious diseases
- Knowledge of current and developing antimicrobial and prophylactic treatments, as well as problems related to the use of antimicrobial agents. Specific understanding of pharmacokinetics, side effects, and multi-drug interactions, including their therapeutic value (cost-utility) and legal issues related to the prescription and control of drugs in Switzerland
- Familiarity with vaccines and immunotherapy
- Authority to advise with respect to potential exposure to infectious agents (i.e. occupational, geographic, or circumstantial exposures)
- Knowledge of risks, diagnosis, and treatments of iatrogenic and nosocomial infections
- Familiarity with sterilization, disinfection and decontamination methods
- Knowledge and ability to interpret data and general concepts in infectious disease epidemiology, including their impact on public health, as well as preventative measures.
- Ability to assess one's own limitations, while maintaining the ability to engage colleagues
- Ability to professionally discuss, and consult with other specialists

##### o *Technical*

- Knowledge of techniques used to determine the etiology and treatment methodologies of infectious diseases, including methods for collection and

transportation of micro-organisms, interpretation of rapid tests, methods for culturing micro-organisms, microbiological interpretation of clinical results, and therapeutic monitoring of patients

- Basic techniques applied to epidemiology and prevention of infection

- ***Ethical***

- Recognition of important concepts in medical ethics
- Ability to independently use instruments that facilitate ethical decision-making
- Independent management of ethical issues in common situations, such as provision of information to patients prior to intervention, research on human subjects, communication of diagnosis, relationships with dependents, deprivation of freedom, decisions in end-of-life situations, and palliative care

- ***Health Economics***

- Understanding of important concepts in the field of health economics
- Independent management of economic issues

- ***Patient Safety***

- Knowledge of principles in security management during examination and treatment of infected and uninfected individuals
- Proficiency in management of risks and complications
- Basic knowledge in the field of patient safety, particularly with respect to health care-associated infections

## **B. Objective for Teaching of Theory**

Teaching of theory, corresponding to the acquisition of 30 ECTS credits, provides opportunities for the candidate to acquire knowledge specific to the field of infectious diseases and the prevention and control of infection.

### ***Specific Areas of Instruction***

- Familiarity with the etiology, pathophysiology, diagnosis, treatment, prevention, and epidemiology of infectious diseases
- Ability to critically analyze, interpret and summarize scientific reports
- Expertise with laboratory techniques used for diagnosis, treatment, and monitoring of infectious diseases
- Knowledge of principles and methods used for monitoring, measuring impact, and prevention of health care-related infections
- Familiarity with principles and methods of basic epidemiology applicable to the control and prevention of health care-related infections

- Knowledge of data related to the consumption of antibiotics, development of antibiotic resistance, and its epidemiological and clinical implications
- Proficiency in the principles, conduct, and interpretation of prospective and retrospective clinical studies

### **C. Specific Objectives of the End-of-Study Project**

The end-of-study project corresponding to the acquisition of 30 ECTS credits requires the candidate to conduct clinical research under the direction of the MAS program manager or a designated individual. The aim of the project is to familiarize the candidate with the basic methodological aspects of clinical research and enable him or her to make accurate evaluations of clinical observations. The work must culminate in at least one manuscript that has potential to be published in a peer-reviewed scientific journal.

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## **5. Study Plan**

### **A. Clinical Immersion (90 ECTS credits)**

The candidate will acquire skills listed in 4A during a clinical placement within the Divisions of Infectious Diseases, Pediatrics, or Prevention and Control of Infection at the HUG. During a period of two semesters, candidates will select rotations that have not previously been completed during their prerequisite clinical training in experimental infection, epidemiology, and prevention of infectious diseases. Clinical immersion consists of the following:

1. At least 12 months of adult or pediatric consultations in a hospital setting
2. A 12-month clinical rotation in:
  - a. Prevention and control of infection
  - b. HIV Unit
  - c. Microbiology
  - d. Research and clinical studies

The clinical immersion corresponds to **90 ECTS credits**.

### **B. Structured Teaching of Theory (30 ECTS credits)**

Teaching of theory includes :

1. Structured conferences
2. Interdepartmental conferences
3. Journal club
4. Coursework
5. Specialization days

Teaching of theory also includes preparation for the final federal examination, which includes 15 workdays corresponding to **4 ECTS credits**.

## Structured teaching of theory

Teaching category	Title	Teaching hours	Personal work hours	ECTS Credits
Structured symposia	Training and research in infectious diseases	60 h	15 h	<b>16</b>
	Infectious Diseases	60 h	15 h	
	HIV	60 h	15 h	
	Symposia based on infectious diseases cases	32 h	8 h	
	Departement symposium	60 h	0 h	
	Revision of articles submitted to journals with high impact factors	30 h	15 h	
	Data session of the division and prevention and control of infection	60h	15 h	
Journal club	Journal club of the division of prevention and control of infection	60 h	15 h	<b>3</b>
Classes bloc	Introduction to diagnostic and patients care in infectious diseases	20 h	10 h	<b>1</b>
Specialization days	Annual Congress of the Swiss Society of Infectious Diseases	40h	10 h	<b>6</b>
	Club of infectious pathologies	30 h	15 h	
	Improvement course of the Swiss Society of Infectious Diseases	30 h	15h	
	Annual symposium of the Swiss Society of hospital hygiene	14 h	4 h	
	"Journée romande" of hospital hygiene	14h	4 h	
Preparation for final exam			100 h	<b>4</b>
	<b>Total</b>	<b>570 h</b>	<b>256 h</b>	<b>30</b>

*Each 25-30 h workload correspond to 1 ECTS credit*

The structured teaching of theory corresponds to **30 ECTS credits**.

### C. End-of-study project (30 ECTS credits)

As a rule, the aim is to contribute to a scientific project in the field of infectious diseases or the prevention and control of infection that will culminate in a manuscript with potential to be published in a peer-reviewed scientific journal.

The end-of-study project corresponds to **30 ECTS Credits**.

## Summary of Study Plan and and Associated ECTS Credits

Study Plan	Subcategories	ECTS Credits
Clinical Immersion		90
Teaching of Theory	Structured symposia	16
	Journal club	3
	Coursework	1
	Specialization days	6
	Final exam preparation	4
End-of-Study Project		30
Total		150

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## 6. Evaluation Criteria

Clinical immersion will be validated by the head of MAS in Infectious Diseases and Control and Prevention of Infection after each annual evaluation. Two positive evaluations are required to validate this part of the MAS.

Evaluation of accumulated knowledge will be based on an examination consisting of two parts: an individual oral examination of theory and a practical examination which includes a written report and oral interview regarding two patient consultations based on medical records. Both parts are organized and evaluated by members of the review committee, appointed by the Swiss Society for Infectious Diseases. The exam is held annually.

For pediatricians, the evaluations will focus on pediatric infectious diseases.

Outcomes for both parts of the examination will be designated as either “successful” or “unsuccessful”. Success for both parts is required to obtain the MAS in Infectious Diseases and Control and Prevention of Infection.

The end-of-study project will be evaluated in accordance with Article 12 of MAS Regulation in Clinical Medicine.

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