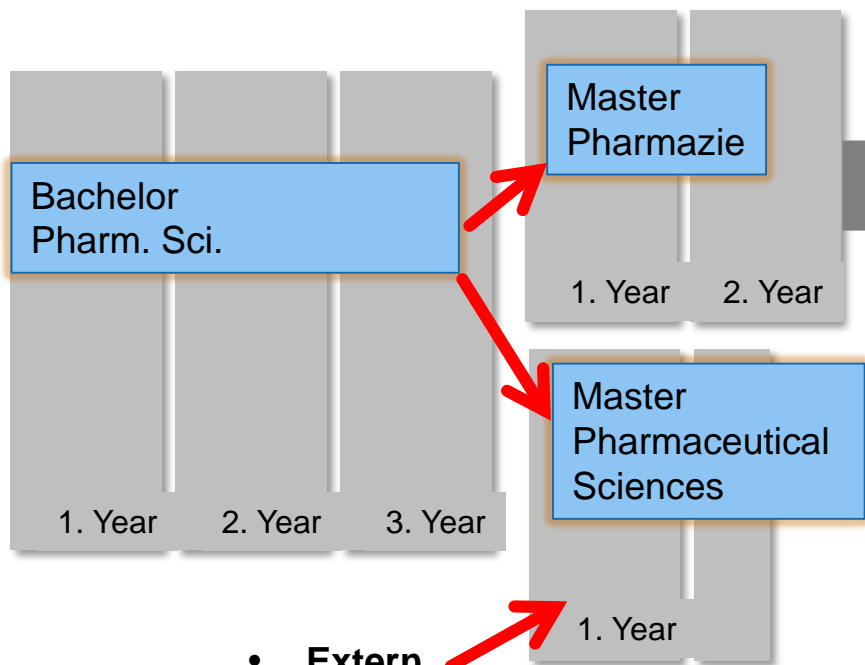


Reform of Master Programmes Pharmazie / Pharmaceutical Sciences





Eidgenössische
Apotheker-
prüfung

- Accredited programme
- **Stronger focus on clinical, practice oriented pharmacy**

- **Accessible also to non-pharmacy students**
- **Dual orientation: Research and Industry**

- **Extern**
- **ETH:**
 - Health Sci.& Technol.
 - Interdisc. Nat. Sci.
 - Biology
 - Food Sci.

Agenda

- **MSc Pharmazie**
- **MSc Pharmaceutical Sciences**
- **Diploma of Advanced Studies (DAS) Pharmazie**

New Webpage MSc. Pharmazie

www.master-pharmazie.ethz.ch

- Bachelor
- Master**
- MSc Chemie
- MSc Chemie- und Bioingenieurwissenschaften
- MSc Pharmazeutische Wissenschaften (aktueller Studiengang)
- MSc Pharmazie (neu ab Herbst 2017)**
- Über den Master-Studiengang
- Berufsmöglichkeiten
- Eintrittsbedingungen und Anmeldung
- Gebühren und Finanzen
- Standort und Leben in Zürich
- Dokumente
- MSc MIPS (aktueller Studiengang)
- MSc Pharmaceutical Sciences (neu ab Herbst 2017)
- MSc Interdisziplinäre Naturwissenschaften
- Studienadministration
- Oskar Jeger Stipendium
- Hs. H. Günthard Master Scholarship

MSc Pharmazie (ab Herbst 2017)

Dieser revidierte Studiengang bereitet Studierende auf eine Tätigkeit in einer öffentlichen Apotheke, einer Spitalapotheke oder als **Amtsapothekerinnen und Amtsapotheker** vor. Das Curriculum basiert auf dem neuen Lernzielkatalog des eidgenössischen Medizinalberufegesetzes (MedBG) und kann mit der eidgenössischen Prüfung in Pharmazie abgeschlossen werden.



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Das **neue MedBG** verlangt, dass Apothekerinnen und Apotheker stärker als bisher zur medizinischen Grundversorgung beitragen sollen. Auf diesem Grundsatz basiert der "Lernzielkatalog Pharmazie 2016". Der revidierte Masterstudiengang setzt diese neuen Vorgaben um, was sich im Fokus auf **Kompetenzen in Diagnostik, klinischer Beurteilung und Triage in der Apotheke** widerspiegelt.

- [Über den Master-Studiengang →](#)
- [Berufsmöglichkeiten →](#)
- [Eintrittsbedingungen und Anmeldung →](#)
- [Gebühren und Finanzen →](#)
- [Standort und Leben in Zürich →](#)



D CHAB

Studienadministration
und -Beratung



Rosmarie Isler
ETH Zürich
Vladimir-Prelog-Weg 2
HCI H 203
8093 Zürich, Schweiz
Tel. +41 44 633 46 77
[E-mail →](#)

Koordinator
Assistenzjahr



[Stefan Emi →](#)

Studiendirektorin



[Prof. Dr. C. Halin Winter →](#)

Dokumente

[Qualifikationsprofil,](#)
[Studienreglement, etc. →](#)

MSc Pharmazie: Stronger focus on clinical and practice-oriented pharmacy



Amendments in MedBG (20.03.2015):

PharmazeutInnen sollen in Zukunft stärker in die medizinische Grundversorgung eingebunden werden:

- *Impfungen durchführen*
- *Klinische Beurteilung in der Apotheke vornehmen und Therapien verschreiben*

Stronger focus on providing and achieving of pharmaceutical **problem-solving skills:**

- Integration of multiple case studies, presentations, and discussions in the teaching, more time for self-study and reflection
- Clinical education in hospital:
1 week in hospital pharmacy + 1 week clinical trainings with patient contact
- Training in injection techniques, vaccination, reanimation techniques

Structure of MSc. Pharmazie

1. Semester	Pharmakologie u. Tox. III, Therapeutic Proteins, Pharmakoepidemiologie, Klinische Chemie II		
	Arzneimittelseminar	Wahlfächer	Triage, Diagnose, Therapiebegleitung (TDT)

2. Semester			
	Master-Arbeit (24 Wochen), regelmässige Workshops "Klinische Kasuistiken"		

3. Semester			
	Praktische Assistenzzeit, Module "Praktische Pharmazie I"		

4. Semester			
	Praktische Assistenzzeit, Module "Praktische Pharmazie II"		

	Courses for deepening basics of pharmaceutical sciences
	Master thesis
	Courses in clinical and practice-oriented pharmacy
	Residency in public pharmacy

MSc Pharmazie – Programme overview

Focus on clinical and practice-oriented pharmacy

1. Semester: Therapy, Diagnosis & Triage (TDT)

- Acquisition of clinical competencies with respect to disease patterns, triage, diagnosis and therapy
- Knowledge on therapy support (pharmaceutical care) and prevention (health care / public health)

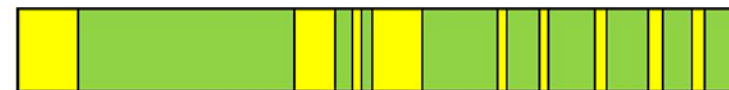
Pharmakologie u. Tox. III, Therapeutic Proteins, Pharmakoepidemiologie, Klinische Chemie II		
Arzneimittelseminar	Wahlfächer	Triage, Diagnose, Therapiebegleitung (TDT)

2. Semester: Clinical cases

Solving clinical study cases; inserted blocks during Master thesis, for maintaining and further developing clinical competencies



Master-Arbeit (24 Wochen), regelmässige Workshops "Klinische Kasuistiken"



Praktische Assistenzzeit, Module "Praktische Pharmazie I"

3. & 4. Semester: Practice-oriented pharmacy I & II

Acquisition of diverse practical competencies



Praktische Assistenzzeit, Module "Praktische Pharmazie II"

Therapeutic skills I&II, legislation, regulations, pharmaco-economics, clinical trainings, manufacturing of drug products in small quantities, hospital pharmacy, injection techniques, vaccinations

MSc. Pharmazie: 1st Semester

1. Semester

Pharmakologie u. Tox. III, Therapeutic Proteins, Pharmakoepidemiologie, Klinische Chemie II		
Arzneimittelseminar	Wahlfächer	Triage, Diagnose, Therapiebegleitung (TDT)
	Courses for deepening basics of pharmaceutical sciences	
	Courses in clinical and practice-oriented pharmacy	

Compulsory subjects I

	ECTS	Performance assessment
Pharmacology & Toxicol. III	2	Exam
Pharmacoepidemiology	3	Exam
Therapeutic Proteins	3	Exam
Clinical Chemistry II	1	Graded semester performance
Drug seminar	5	Non-graded semester performance

Compulsory subjects II

TDT (non-compensable)	9 (3 x 3)	graded semester performance <i>(1 grade - 3 parts)</i>
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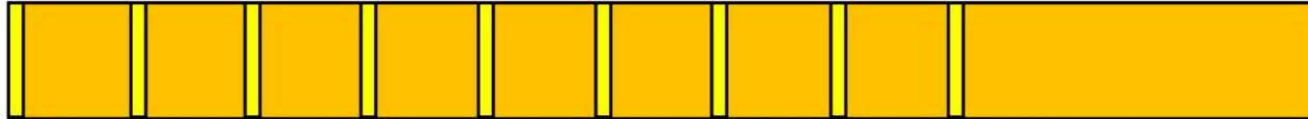
Elective subjects

(Electives for compensation)	2 max.3	graded semester performance graded semester performance)
Science in context	2	

TOTAL
27

MSc Pharmazie: 2nd Semester

2. Semester



Master-Arbeit (24 Wochen), regelmässige Workshops "Klinische Kasuistiken"

	Master thesis
	Workshops Clinical cases

Subject

ECTS

Performance assessment

Master thesis

30

graded semester performance

Compulsory subjects II (cont'd)

Clinical cases

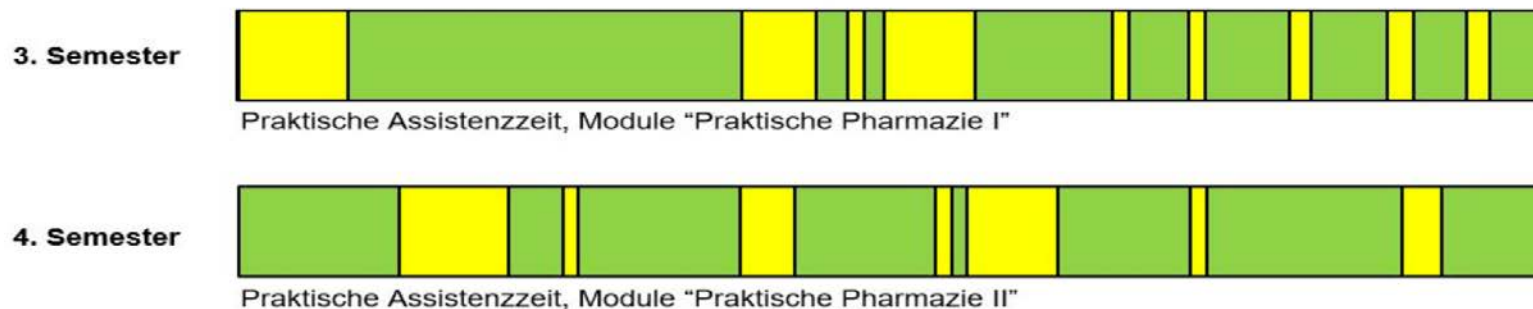
3

graded semester performance
(non-compensable)

Workshops Clinical cases

- every 2nd week, 3-4 h on Monday mornings
- Case Studies:
 - Week 1: Introduction to cases
 - Week 2: Individual case study solving in small groups
 - Week 3: Presentation of cases, Discussion, Introduction to new cases.

MSc Pharmazie: Residency year



Subject	ECTS	Performance assessment
Practice-oriented pharmacy I (min. 6 ECTS)	9	
Therapeutic Skills I	3	Graded semester performance
Therapeutic Skills II	3	Graded semester performance
Legislation, regulations and pharmaco-economy	3	Graded semester performance
Compensation: Electives or additional case study (max. 3 ECTS)		
Practice-oriented pharmacy II (non-compensable)	12	
Clinical training	3	Non-graded semester performance
Manufacturing of drug products in small quantities	3	Non-graded semester performance
Hospital pharmacy	3	Non-graded semester performance
Injection techniques / vaccinations	3	Non-graded semester performance
Case studies from residency (3)	9	Graded semester performance
Total	30	

Department of Chemistry and Applied Biosciences

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 [Continuing Education](#) |
 [Outreach Education](#)

ETH Zurich → D-CHAB →

Bachelor

Master

MSc Chemistry

MSc Chemical and Bioengineering

MSc Pharmaceutical Sciences
(current programme)

MSc Pharmacy (new as of 2017)

MSc MIPS (current programme)

**MSc Pharmaceutical Sciences
(new as of 2017)**

About the programme

Career options

Entry requirements

How to apply

Fees and Funding

Location and living in Zurich

Documents

MSc Interdisciplinary Sciences

Student Administration

Oskar Jeger Scholarship

Hs. H. Günthard Master Scholarship

MSc Pharmaceutical Sciences

This new Master's programme prepares students for a career in academia or in the pharmaceutical industry. It addresses talented and highly motivated students with a Bachelor's degree in pharmaceutical sciences, the health sciences, biology or biomedicine.



ETH Zurich → is one of the **leading universities** of technology and natural sciences. The scientific courses within the programme are taught by faculty members of the **Institute of Pharmaceutical Sciences** →. Industry-specific subjects are covered by experts from the **pharmaceutical industry**. The pharmaceutical industry ranks among the most innovative and profitable sectors of the Swiss economy.

Location: ETH Zurich, Switzerland
Duration: 1.5 years, 90 ECTS (full-time)
Start date: September 2017
Language: English
Degree: MSc in Pharmaceutical Sciences ETH

The programme provides an in-depth training in **fundamental pharmaceutical sciences** and the **industrial drug development process**. A supervised **research project**, the 6-month **Master's thesis** and optional **internships in industry** provide opportunities to work in research at ETH Zurich and to gain first working experience in industry.

D CHAB

Student administration
and counselling



Rosmarie Isler
 ETH Zurich
 Vladimir-Prelog-Weg 2
 HCI H 203
 8093 Zurich, Switzerland
 tel. +41 44 633 46 77
[E-mail](#) →

Study coordinator



[Prof. Dr. B. Gander](#) →

Director of studies



[Prof. Dr. G. Holin-Winter](#) →

MSc Pharm. Sci.

www.master-pharmsciences.ethz.ch



Flyer (PDF,
214 KB) ↓

containing
Information
on the
master's
programme

Focus of new MSc Pharm. Sci.

Prepares for professional activities in academic research (Ph.D.), in pharmaceutical industry, or with regulatory agencies

- Multidisciplinary study programme
- Multiple electives (22 / 90 ECTS), supported by tutoring system
- Opportunities for acquiring practical experience (research, industry)
- In-depth overview on drug discovery & development processes / post-approval aspects and the diverse professional fields activity in industry
- Various courses for acquiring scientific working skills
(Scientific writing, Project management, Scientific concepts and methods, Ethics in research and drug discovery, Pharm. biostatistics)

Structure of new MSc Pharm. Sci.

1. semester

Advanced pharmacology, pharmacoepidemiology, therapeutic proteins, scientific writing, patents	
Introduction to drug discovery and development	1. research project (7 weeks; Thu-Fri)
Elective courses	

2. semester

- *practical track*

- *theoretical track*

Pharmaceutical skills - scientific concepts & methods - ethics - biostatistics - project management	Industry-specific skills - drug product development - quality and production - clinical development - regulatory affairs - pharmacovigilance - pharmacoconomics & marketing	2. research project (12 weeks) or internship in industry (12 weeks)
		science or industry-specific modules

3. semester

Master's thesis at ETH or industry (26 weeks)

compulsory
 elective

MSc Pharm. Sci.: 1st Semester

1. semester

Advanced pharmacology, pharmacoepidemiology, therapeutic proteins, scientific writing, patents	
Introduction to drug discovery and development	1. research project (7 weeks; Thu-Fri)
Elective courses	

Subjects	ECTS	Performance assessment
Compulsory I (min. 10 ECTS)	13	
Pharmacology and Toxicology III	2	Exam
Therapeutic Proteins	3	Exam
Pharmacoepidemiology	3	Exam
Patents	1	Graded semester performance
Medicinal Product Development Process	2	Non-graded semester performance
Scientific Writing	2	Non-graded semester performance
Electives I	7	
Multiple courses Drug seminar 3 Crash-courses for non-pharmacy students (compulsory)		Graded and non-graded semester performances
Project work	8	Non-graded semester performance
Science in context	2	
Total	30	

MSc Pharm. Sci.: 2nd Semester – **Compulsory subjects**

2. semester

- *practical track*

- *theoretical track*

Pharmaceutical skills - scientific concepts & methods - ethics - biostatistics - project management	Industry-specific skills - drug product development - quality and production - clinical development - regulatory affairs - pharmacovigilance - pharmacoconomics & marketing	2. research project (12 weeks) or internship in industry (12 weeks)
		science or industry-specific modules

- **Pharmaceutical Competencies (6 ECTS)**

- Scientific Concepts and Methods (5 days)
- Ethics in Drug R&D (2 days)
- Project Management (3 days)
- Pharm. Biostatistics (3 days)

- **Industry-specific Competencies (9 ECTS)**

- Drug Product Development (3 days)
- Quality & Production (4 days)
- Regulatory Affairs (3 days)
- Clinical Development (2 days)
- Pharmacovigilance (1 day)
- Pharmacoconomics and Marketing (2 days)

MSc Pharm. Sci.: 2nd Semester - *Electives*

2. semester

- *practical track*

Pharmaceutical skills

- scientific concepts & methods
- ethics
- biostatistics
- project management

Industry-specific skills

- drug product development
- quality and production
- clinical development
- regulatory affairs
- pharmacovigilance
- pharmacoconomics & marketing

2. research project (12 weeks) or
internship in industry (12 weeks)

- *theoretical track*

science or industry-specific modules

Practical

Training: Second research project or Industry internship (12 weeks)


Courses: *Deepening or extending industry-oriented subjects: Project management, Drug Product Development, Quality & Production, Regulatory Affairs & Pharmacovigilance, Vaccines, DMPK in drug development, Medical devices, Communication skills*


Immersion project (7 ECTS): - based on existing data or literature)
- in any subject, supervised by corresponding lecturer

MSc Pharm. Sci.: 3rd semester - Master thesis

3. semester

Master's thesis at ETH or industry (26 weeks)

 compulsory

 elective

Is it possible to obtain the Federal diploma of pharmacy after graduation as MSc Pharm. Sci.?

- **YES** – by way of the **DAS (Diploma of Advanced Studies) Pharmazie**
- Two-year programme, which allows to catch up on the missing courses and residency in a public pharmacy (CHF 2'400.-)

