UNIVERSITY

INDUSTRY

BRIDGE THE GAP !

CILS

CERTIFICATE IN INDUSTRIAL LIFE SCIENCES

IMPROVING THE EMPLOYABILITY OF GRADUATES WITH A UNIVERSITY DEGREE IN LIFE SCIENCES

UNIVERSITÉ DE GENÈVE
FACULTÉ DES SCIENCES

Certificate in Industrial Life Sciences (CILS)

General organization of the Certificate in Industrial Life Sciences (CILS)

Courses will be given over a 6 month period by – or in collaboration with – experts from various companies active in the field of Life Sciences.

The topics covered by this certificate include:

- *Introduction to the pharmaceutical industry*
- *Drug discovery*
- *Drug development and clinical trials*
- *Biostatistics in drug development*
- *Quality control management*
- *Patenting procedures*
- *Development of predictive medicine*
- *In vivo models*
- *Ethics*

> Once validated, these courses will provide 24 ECTS (European credits)
> Students will also be required to produce a portfolio on a theme related to the courses that they have received during the CILS program. This personal portfolio will be evaluated by industrial experts (CILS partners, Advisory Board) and will provide 6 ECTS
> **In total the CILS program corresponds to** **30 ECTS**

Although not a requirement of the CILS program, the students are strongly encouraged to develop their professional skills by undertaking some form of practical training / internship in a non-academic institution in addition to the coursework. The Career Center of the University of Geneva (Career Center; https://www.unige.ch/dife/carriere/) will help in the organization of these traineeships.

CILS program: Courses

The course content of the CILS program is designed to evolve according to the priorities and interests of the companies active in the field of Industrial Life Sciences and will be reassessed every year by the Advisory Board.

Course name	Responsible	Contributors	Dotation
1. INTRODUCTION TO THE PHARMACEUTICAL INDUSTRY	Pr. L. SCAPOZZA	*Dominik HOTZ,* **Leader Pharma / Life Sciences Consulting, PricewaterhouseCoopers (PwC)** *Dr Bodo BAUMEISTER*, **Partner in PwC's Life Sciences Consulting practice in Switzerland**	50 hrs 5 ECTS
2. DRUG DISCOVERY AND DEVELOPMENT : AN INDUSTRIAL PERSPECTIVE	Pr. Y. KALIA	*Dr Marco Prunotto,* **Principal Senior Scientist, Roche**	20 hrs 2 ECTS
3. DRUG DEVELOPMENT AND CLINICAL TRIALS	Pr. L. SCAPOZZA	*Dr Sabine Latour*, **Director, Global Market Access , Debiopharm** *Dr Andres McAllister*, **AM Consulting** *Dr A. Naik,* **Senior Consultant, Triskel Integrated Services**	20 hrs 2 ECTS
4. BIOSTATISTICS WITHIN DRUG DEVELOPMENT	Geneva School of Economics and Management (GSEM)	*Dr Francois Curtin,* **CEO, GeNeuro SA** *Dr David Warne,* **Consultant Biostatistician**	24 hrs 2.5 ECTS
5. BIOTECHNOLOGY DEVELOPMENT	Pr. J. GRUENBERG	*Dr Marie Kosco-Vilbois* **CSO, NovImmune**	20 hrs 2 ECTS
6. PERSONAL GENOMICS & PREDICTIVE GENETICS	Pr. JC MARTINOU	*Dr Goranka Tanackovic* **CEO, Gene Predictis** *Pr Daniel Kraus*, **Innovation Law, University of Neuchatel**	10 hrs 1 ECTS
7. THEORY into PRACTICE: CREATING a SUCCESSFUL BUSINESS in Life Sciences	Pr. JC MARTINOU	*Dr Jurgi Camblong,* **CEO, Sophia Genetics**	10 hrs 1 ECTS
8. QUALITY BY DESIGN (QBD) TO ENSURE PRODUCT QUALITY and OPERATIONAL EXCELLENCE (Lean 6 Sigma)	Pr. Y. KALIA	*Michael Bowley,* **Associate VP Technical Support, Compliance, Ferring** *Jérôme Repiton,* **Director, Global Operational Excellence, Ferring** *Julien Boccadoro,* **Process Development Manager, Ferring**	20 hrs 2 ECTS Ferring, on site
9. PHARMACEUTICAL PROJECT AND PORTFOLIO MANAGEMENT	Pr. Y. KALIA	*Dr Andrew Sadler,* **Director of the Project Management Office and Portfolio management, Ferring**	6 hrs 0.5 ECTS
10. PATENTING PROCEDURES AND INTELLECTUAL PROPERTY	Pr. L. SCAPOZZA Pr. JC MARTINOU	*Pr Daniel Kraus*, **Innovation Law, University of Neuchatel** *Dr Laurent Miéville,* **Director, Unitec** *Dr Kamran Houshang Pour,* **Patent Expert at Swiss Federal Institute of Intellectual Property (IGE/IPI)** *Dr Pascal Weibel* **Head Patent Examination at IGE/IPI**	20 hrs 2 ECTS ⊕
11. PRE-CLINICAL IN VIVO MODELS	Pr. I. RODRIGUEZ	*Dr Fabienne CHABAUD* **Coordinator RESAL** Resal module-1 theory course	20 hrs 2 ECTS
12. SCIENCE, TECHNOLOGIES AND SOCIETY IMPACT	Pr. S. HURST	*Pr. Samia Hurst,* **Director Ethic Institute (IEH2)**; *Dr. Christine Clavien*	20 hrs 2 ECTS
13. PORFOLIO / PROJECT REPORT	Dr B. KAUFMANN Pharma Sciences	Literature report : (i) review on topics proposed during the lectures with an oral presentation (ii) written summary of insights gained during the site visits to companies	6 ECTS
		Total	**30 ECTS**

INFORMATION on TEACHING MODULES

Course 1. Introduction to the pharmaceutical industry

Lecturer:

Dominik HOTZ (Partner, Leader Pharma / Life Sciences consulting Switzerland @ PricewaterhouseCoopers – PwC - Switzerland)
Dr Bodo BAUMEISTER (Partner in PwC's Life Sciences Consulting practice in Switzerland @ PricewaterhouseCoopers – PwC - Switzerland)

Course Outline:

The objective of this course is to gain an overview of the pharmaceutical & biotech industry, its history, structure and challenges and the organisational structure of pharmaceutical companies. Starting with an overview of the industry, the course will explore some of the most pressing challenges the industry faces. During the final session 2 executives from the industry will discuss the opportunities and challenges they are facing with the participants.

Schedule:

- Day 1: Industry Overview: History, Industry Structure, Challenges and Organisational Structures
- Days 2-4: Challenges Facing the Industry: Case Studies
- Day 5: Meet the Industry

Preparation Needed:

- Day 1: None
- Days 2-4: Prepare Case Studies: 20 hours
- Day 5: Prepare Interview with Industry Executives: 1 hour

(Please note: The date of Day 5 may change depending on the availability of the industry executives participating; any change in the date will be discussed with the participants to ensure that everyone can attend.)

Agenda (may be subject to modifications):

5 one-day sessions, on each session the course will take place between 10am-1pm and 2-5pm.
50 hours in total

Date	*Session #*	*Time schedule*	*Location*
20.02.2018	1	10 :00-17 :00 (including break)	CMU room A04.2906
06.04.2018	2	10 :00-17 :00 (including break)	CMU room A04.3011
20.04.2018	3	10 :00-17 :00 (including break)	CMU room A04.2906
27.04.2018	4	10 :00-17 :00 (including break)	CMU room A04.2906
25.05.2018	5	10 :00-17 :00 (including break)	CMU room A04.2906

Evaluation mode:

Attestation (delivered based on attendance and active participation during the course

ECTS dotation:

5 credits (ECTS) (including preparatory work)

Course 2. Drug discovery & development: an industrial perspective

Lecturer:

Dr Marco PRUNOTTO (Senior Clinical Development Scientist at Roche, Basel)

Course Outline:

- Strategy and Trends in Pharma today;
- A therapeutic area under the microscope;
- Explore serendipity: phenotypic drug discovery back into the game

Agenda (may be subject to modifications):

5 sessions of four hours each, 20 hours in total

Date	*Session #*	*Time schedule*	*Location*
23.04.2018	1	13 :15-17 :30 (including break)	CMU room A04.2906
26.04.2018	2	13 :15-17 :30 (including break)	CMU room D 60
03.05.2018	3	13 :15-17 :30 (including break)	CMU room A04.2906
~~**14.05.2018**~~	~~**4**~~	~~13 :15-17 :30 (including break)~~	~~CMU room A04.2906~~
~~**24.05.2018**~~	~~5~~ 4	~~13 :15-17 :30 (including break)~~	~~CMU room A04.2906~~
01.06.2018	5	13 :15-17 :30 (including break)	CMU room A04.2713

Evaluation mode:

Attestation (delivered based on attendance and active participation during the course)

ECTS dotation:

2 credits (ECTS)

Course 3. Drug development: regulatory aspects and clinical trials

Lecturers:

Dr Andres McALLISTER (MD, PhD consultant at AM Consulting)
Dr Aarti NAIK (Senior Consultant, Triskel Integrated Services)
Dr Sabine LATOUR (Director Global Market Access at Debiopharm)

Objectives:

To give the students an introduction to the main topics linked to setting up *the clinical evaluation of a drug* and preparing *a dossier to be submitted to regulatory agency for approval*.

Course Outline:

- Session 1 Introduction (Andrés Mc Allister)
- Session 2 Pharmacovigilance/safety (Andrés Mc Allister)
- Session 3 Clinical protocols 1 (Andrés Mc Allister)
- Session 4 Clinical protocols 2 (Andrés Mc Allister)
- Session 5 Clinical study/organization 1 (Sabine Latour)
- Session 6 Clinical study/organization 2 (Sabine Latour)
- Session 7 Regulatory aspects of drug development and approval (Aarti Naik)
- Session 8 Regulatory aspects of drug development and approval (Aarti Naik)
- Session 9 Clinical study/organization 3 (Sabine Latour)
- Session 10 Clinical study/organization 4 (Sabine Latour)

Endpoints for single modules:

Pharmacovigilance /safety:

The students understand how the clinical safety profile of a drug is defined during premarketing and postmarketing periods
The students understand the aims and the methods of passive pharmacovigilance vs. proactive pharmacovigilance (pharmacoepidemiology).

Clinical study/organization:

The students know how a controlled clinical study is planned, performed and monitored
The roles of the different actors, including the hospital pharmacist, are discussed
The students know what is meant by Good Clinical Practice (GCP)
The students know what a patient consent form is (informed-consent documents)

Regulatory aspects of drug development and approval: The students will:

- understand the role of regulatory agencies in the development, approval and post-marketing lifecycle of medicines
- learn about fundamental European legislation governing the use of medicinal products in humans
- understand how medicines are approved in Europe and about different licensing procedures available in Europe
- learn about the content and format of a dossier ("marketing authorisation application") necessary for obtaining approval for medicines from regulatory agencies

Agenda:

6 days, 24 hours in total.

Date	*Session #*	*Time schedule*	*Location*
22.02.2018	1&2 (AMcA) – 4hrs	13 :30-17 :30 (including breaks)	CMU room B02.2526
~~**01.03.2018**~~	~~3&4 (AMcA) - 4hrs~~	~~13 :30-17 :30 (including breaks)~~	~~CMU room D60~~
05.03.2018	5&6(SL) – 4hrs	13 :30-17 :00 (including breaks)	CMU room A04.2713
19.03.2018	3&4 (AMcA) - 4hrs	13 :30-17 :30 (including breaks)	CMU room S4-S5
22.03.2018	7&8 (AN) – 4 hrs	13 :30-17 :00 (including breaks)	CMU room A04.2713
26.03.2018	9&10 (SL) – 4hrs	13 :30-17 :00 (including breaks)	CMU room A04.2713
16.05.2018	Wrap-up session (AMcA) – 4hrs	13 :30-17 :30 (including breaks)	CMU room A04.3018

Evaluation mode:

certificate of attendance and case study presentation during wrap-up session

ECTS dotation:

2 credits (ECTS)

Course 4. Biostatistics within drug development (Geneva School of Economics and Management – GSEM – University of Geneva)

Lecturers:

Dr François CURTIN (Pharmacovigilance, Corporate Medical Director)
Dr David W. WARNE (Consultant Biostatistician)

Objectives:

The course offers an introduction to different aspects of biostatistics focusing on how biostatistics is used in drug development and health care research. Students will see how biostatistics can be applied to medical and pharmaceutical research to respond to critical questions of medicine and biology. The course should elicit the interest of students to pursue further study in the field of biostatistics or to consider starting a Professional career in this applied field of statistics.

With six blocks, the course discusses topics of biostatistics, which are key to support the development of new drugs and to explore medical questions from a statistical perspective. The course highlights some statistical issues and underlines the role of applied statistics in drug development and health care research. It builds on the theoretical concepts taught earlier during the Master's programme or during an introductory statistics course focusing on the practical application of biostatistics.

Course outline:

- **Module 1: Overview of Biostatistics:** we introduce the clinical development of new drugs and describe the need for the clinical trial methodology to support this development; some trial examples are discussed.
- **Module 2: Trial Design I -** Different experimental designs of clinical trials (parallel, cross-over, cluster, sequential, adaptive trials) are presented with their main statistical methodologies, advantages and issues.
- **Module 3: Trial Design II -** Operational and technical issues related to the performance of clinical trials are presented along with the main regulatory texts related to clinical studies. Technical points such as randomization of patients, sample size and power calculations are introduced.
- **Module 4: Trial Analysis I -** The analysis of biostatistical data with emphasis on specific estimators and statistical models frequently used in trials, including survival analysis, are presented. The methodology to analyse data in pharmaceutical trial is discussed, as well as related issues such as missing data.
- **Module 5: Trial Analysis II** - Analysis, review of data and monitoring of results are discussed. Alternative approaches such as Bayesian models and equivalence/non-inferiority studies are presented.
- **Module 6: Other Applications of statistics in medicine**: Some other applications of biostatistics useful for the understanding of disease causation (epidemiology), the synthesis of studies (meta-analysis) and the effect of medications over large populations (pharmaco-epidemiology) are discussed.

Agenda (should not be subject to modifications):

6 x 4hrs modules, Wednesday from 08:15 to 12:00, 24 hours in total

Date	*Session #*	*Time schedule*	*Location*
21.02.2018	1	08 :15-12 :00	UniMail, room MS040
07.03.2018	2	08 :15-12 :00	UniMail, room MS040
21.03.2018	3	08 :15-12 :00	UniMail, room MS040
11.04.2018	4	08 :15-12 :00	UniMail, room MS040
25.04.2018	5	08 :15-12 :00	UniMail, room MS040
09.05.2018	6 **+ EXAM**	08 :15-12 :00	UniMail, room MS040

Evaluation mode:

based on continuous assessment + final exam **on May 9th**

ECTS dotation:

2.5 credits (ECTS)

Course 5. Biotechnology development

Lecturers:

Dr Marie KOSCO-VILLEBOIS (CSO, NovImmune)
Dr Amanda PROUDFOOT
Dr Zoe JOHNSON
Dr Nicolas FISCHER
Giovanni MAGISTRELLI
Dr Adrian HAINES
Alexandre CARRON
Dr Vanessa BUATOIS
Dr Robert NELSON
Dr Susana SALGADO-PIRES
Dr Krzysztof MASTERNAK
Dr Walter FERLIN

Course Outline:

- Overview of the steps for drug development (2h, MKV)
- Choosing and validating a protein as a target for pharmaceutical intervention (2h, ZJ)
- Discovering a therapeutic macromolecule with an emphasis on antibodies (monoclonal, bispecific, fragments) (2h, NF)
- Generating a robust toolbox and screening approaches (1h, GM)
- Steps in manufacturing antibodies (1h, KW)
- Manufacturing a drug for market: process validation (1h, AC)
- In vitro and in vivo pharmacology studies (2h, VB)
- Testing samples from clinical trials and the notion of GCP (2h, RN)
- Nonclinical safety: toxicology and other safety considerations before entering humans (2h, SS-P)
- Awaking the immune system to fight cancer by targeting CD47 (2h, KM)
- Targeting chemokines: successes and failures (1h, AP)
- Targeting rare diseases: The orphan story (2h, WF)

Agenda (may be subject to modifications):

6 sessions, 20 hours in total

Date	*Speaker*	*Time schedule*	*Location*
23.04.2018	MKV	08 :30-10 :00	CMU room A04.2706
23.04.2018	ZJ	10 :30-12 :00	CMU room A04.2706
24.04.2018	NF	08 :30-10 :00	CMU room A04.2706
24.04.2018	GM	10 :30-11 :15	CMU room A04.2706
24.04.2018	AH	13 :30-14 :15	CMU room A04.2706
24.04.2018	AC	14 :30-15 :15	CMU room A04.2706
30.04.2018	VB	08 :30-10 :00	CMU room A04.2706
30.04.2018	RN	10 :30-12 :00	CMU room A04.2706
30.04.2018	SS-P	13 :30-15 :00	CMU room A04.2706
02.05.2018	KM	14 :30-16:00	CMU room A04.2706
07.05.2018	AP	09 :00-10 :00	CMU room A04.2910
07.05.2018	WF	10 :30-12 :00	CMU room A04.2910

Evaluation mode:

Written examination - case study analysis / multiple choice

ECTS dotation:

2 credits (ECTS)

Course 6. Personal genomics & predictive genetics

Lecturers:

Dr Goranka TANACKOVIC (CEO, Gene Predictis)
Pr. Daniel KRAUS (Professor of Innovation Law at University of Neuchatel)

Course Outline:

- Overview of the personalized/precision medicine today (prognostic aspects, diagnostic aspects and therapeutic aspects with challenges and achievements in all three of them, new tendencies) (3h)
- Development of precision medicine product (starting form a case study and analyzing different aspects of product development: idea, proof of concept, clinical validation, regulatory requirements, reimbursement, how to bring such a product to the market) (3h)
- Regulatory and legal aspects (2h)
- Case studies preparation (2h, homework)

Agenda (may be subject to modifications):

3 sessions, 10 hours in total

Date	*Session #*	*Time schedule*	*Location*
15.05.2018	1 (4h) (GT)	08 :30-12 :00 (including breaks)	CMU room A04.3018
15.05.2018	2 (4h) (GT)	13 :00-17 :00 (including breaks)	CMU room A04.3018
16.05.2018	3 (2h) (DK)	10 :15-12 :00 (including breaks)	CMU room A04.3018

Evaluation mode:

Attendance certificate (delivered based on attendance and active participation during the course)

ECTS dotation:

1 credits (ECTS)

Course 7. Theory into practice: creating a successful business in Life Sciences

Lecturer:

Dr Jurgi CAMBLONG (CEO, Sophia Genetics)

Course Outline:

This course will address various aspects linked to Entrepreneurship such as leadership, project management, financing, marketing & communication. Parallels between PhD and Enterprise projects will be discussed.
Reference books, to be read before beginning of this course: ***The Lean Startup*** *by Eric RIES, 2011, Crown Publishing Group (USA) and* ***Patrick Aebischer*** *by Fabrice Delay, 2015, Favre Sa.*

Agenda (may be subject to modifications):

2 sessions, 10 hours in total, including on-site visit (to be confirmed)

Date	*Session #*	*Time schedule*	*Location*
27.03.2018	1 (4h)	13 :30-17:30 (including breaks)	CMU, room A04.2711
28.03.2018	2 (6h)	08 :30-17:30 (including breaks)	CMU, room A04.2711

Evaluation mode:

Written examination - case study analysis / multiple choice

ECTS dotation:

1 credits (ECTS)

Course 8. Quality by Design (QbD) to ensure product quality

Lecturers:

Michael BOWLEY (Associate VP Technical Support, Compliance at Ferring)
Jérôme REPITON (Director Global Operational Excellence at Ferring)
Julien BOCCADORO (Process Development Manager at Ferring)

Course Outline:

The goal of product development is to design a manufacturing process suitable for routine commercial manufacturing that can consistently deliver a product that meets its pre-defined quality attributes and the patient needs. Since quality cannot be tested into products, quality should be built-in by design. This approach is commonly named Quality by Design or QbD.

Topics:

- QBD (3h)
- Regulatory Affairs in the Pharma Industry (4h, with external contributor from Ferring Int. in Denmark)
- Lean 6 Sigma (3h)
- Home readings (estimated to 4h)

Agenda (may be subject to modifications):

3 sessions, 20 hours in total, including homework and on-site visit (exact date to be confirmed)

Date	*Session #*	*Time schedule*	*Location*
16.04.2018	1 (3h, JB)	08:30-11:30 (including breaks)	CMU room A04.2906
18.04.2018	2 (whole day on site, 3h course JR)	08:30-18:30 (including breaks)	@ Ferring's, Saint-Prex

Evaluation mode:

Attendance certificate (delivered based on attendance and active participation during the course)

ECTS dotation:

2 credits (ECTS)

Course 9. Pharmaceutical project and portfolio management

Lecturer:

Dr Andrew SADLER (Director of the Project Management Office and Portfolio Management Ferring)

Course Outline:

- Pharmaceutical project and portfolio management (to be completed)

Agenda (may be subject to modifications):

2 sessions, 6 hours in total

Date	*Session #*	*Time schedule*	*Location*
09.04.2018	1 (3h)	08:30-11:30 (including breaks)	CMU room A04.2906
10.04.2018	2 (3h)	08:30-11:30 (including breaks)	CMU room A04.2906

Evaluation mode:

Attendance certificate (delivered based on attendance and active participation during the course)

ECTS dotation:

0.5 credits (ECTS)

Course 10. Patenting procedures and intellectual property

Lecturers:

Dr Laurent MIEVILLE (Director UNITEC, University of Geneva)
Pr. Daniel KRAUS (Professor of Innovation Law at University of Neuchatel)
Dr Khamran HOUSHANG POUR (Patent expert at Swiss Federal Institute of Intellectual Property)
Dr Pascal WEIBEL (Head Patent Examination, Swiss Federal Institute of Intellectual Property)

Course Outline:

- Basics of intellectual property
- The different ways to submit a patent
- Patenting strategies
- Patents as information source, royalties, copyright, IP, etc
- «Publish or perish» or «publish and perish»: what must be patented or not? How to protect your research? How to maximize your chances to value your findings?
- Basic knowledge of protective rights, and patenting legal aspects
- Technology transfer issues, commercial aspects
  Practical session : each participant brings a real case as exercice.
- Patents in their context

Agenda (may be subject to modifications):

6 sessions, 20 hours in total

Date	*Session #*	*Time schedule*	*Location*
08.03.2018	1 (DK)	13 :30-16 :30	CMU room D60
15.03.2018	2 (DK)	13 :30-16 :30	CMU room A04.3011
29.03.2018	3 (KH)	13 :15-17 :00	CMU room D60
05.04.2018	4 (PW)	13 :15-15 :00	CMU room A04.3011
12.04.2018	5 (KH)	13:15-17:00	CMU room A04.2906
19.04.2018	6 (LM)	13:15-17:00	CMU room A04.2906

Evaluation mode:

Attendance certificate (delivered based on attendance and active participation during the course)

ECTS dotation:

2 credits (ECTS)

Course 11. Pre-clinical in vivo models

Lecturer:

Dr. Fabienne CHABAUD (CHUV, RESAL)

Course outline :

The course is divided in two parts: part 1 – theory, and part 2 – practice (restricted access).
The CILS students will only follow the part 1: theory course (unless previously validated)

Module 1- THEORY:

Introductory Course in Laboratory Animal Science
Course fees: 100 CHF

Agenda (should not be subject to modifications):

1 session over 1 week, 20 hours in total

Date	*Time schedule*	*Location*
12.03 – 16.03.2018	08 :30 (08:00 on Monday)-12 :45 (13:45 on Friday)	CMU, room TBD

Evaluation mode:

Exam on last day

ECTS dotation:

2 credits (ECTS)

(Module 2- PRACTICAL COURSE)

Introductory Course in Laboratory Animal Science

The practical course is restricted to students/trainees who have professional activities using laboratory animals. Practical teaching transversal / transferable competences (OPTIONAL)
Course fees: 1'000 CHF

Course 12. Science, technologies and society impact

Lecturers:

Dr. Christine CLAVIEN (Senior Lecturer, IEH2, University of Geneva)
Pr. Samia HURST (Director Institute of Ethics, History, Humanities - IEH2 - University of Geneva)

Course topic:

For centuries, philosophers have discussed the link between ethics and natural facts, especially those that pertain to human nature. These debates are presently taking a new turn, as neuroscience, genetics, evolutionary modeling, and cognitive sciences provide fresh insights into the biological basis of human cognition, emotion, and decision-making. Thus scientific knowledge becomes increasingly relevant to our understanding of moral judgements and behavior. Simultaneously, new discoveries in neuroscience and genetics raise unprecedented ethical issues: e.g. related to the use of technologies and drugs that alter human cognition or character, or related to the relevance of scientific expertise for judicial decision making.
In this course, along a series of invited conferences, the students will learn how ethics is transformed by recent scientific knowledge

Learned skills and content

- Transpose knowledge and results from scientific fields to philosophical debates
- Understand the impact of empirical discoveries in genetics, neuroscience and medicine on classical philosophical debates (e.g. free will, mind-body problem)
- Understand the contribution of evolutionary biology and neuroscience to a descriptive understanding of human moral behavior
- Develop a critical view on the relationship between empirical knowledge on humans (e.g. brain mechanisms, behavioral tendencies) and the moral foundation of norms and values
- Explore the practical ethical implications of new scientific and medical discoveries (social implications, legal issues, emergence of new moral responsibilities, etc.).

Agenda (may be subject to modifications):

2 hours weekly on Thursday morning, from 10:15 to 12:00. Due to some conflicts of agenda, the CILS students will only be able to attend the following sessions, and to do homework for missing sessions:

Date	*Topic*	*Time schedule*	*Location*
22.02.2018	Introduction	10 :15-12 :00	CMU, Building C, room S4-S5
01.03.2018	A few basics on ethics	10 :15-12 :00	
08.03.2018	Measuring moral competences: the example of moral sensitivity	10 :15-12 :00	
22.03.2018	Addiction, a gain of function disease of well being	10 :15-12 :00	
29.03.2018	TBA (topic on black-box medicine)	10 :15-12 :00	
05.04.2018	*Easter Bre*ak		
12.04.2018	*Easter Bre*ak		
19.04.2018	Determinism and Free will – empirical perspective	10 :15-12 :00	
26.04.2018	Determinism and free will – metaphysical perspective	10 :15-12 :00	
03.05.2018	Genetics, neuro-science and court justice	10 :15-12 :00	
10.05.2018	*Ascension Break*		
17.05.2018	Neural enhancement and ethical implications	10 :15-12 :00	
24.05.2018	TBA (topic on emotions and values)	10 :15-12 :00	

Evaluation mode: attendance certificate

ECTS dotation: 2 credits (ECTS)

Course 13. Portfolio / Project Report

Responsible: Dr. Béatrice KAUFMANN (Pharmaceutical Sciences, Faculty of Sciences, University of Geneva)

The portfolio is a personal piece of work based on the acquisitions obtained across the various courses and during the site visits. Each student is free to select the topic that attracts his-her interest in Industrial Life Sciences, as well as the way he-she wants to build his-her portfolio.

Three modes of presentation are requested:

- a written report – it can also be a media document –
- few slides for a flash talk
- a poster for discussion.

For pedagogical advice, *Catherine HUNEAULT* or *Steve BENNOUN* (Unige Career Center) are also available.

Evaluation mode:

- *Written report in English by default (other language possible after discussion with the board) that will be evaluated by experts selected by the CILS board*
- *Oral flash-talk presentation and poster presentation during final CILS symposium*
- *Evaluation: evaluation by the board of the certificate*

ECTS dotation:

6 credits (ECTS)

One Day Site Visits

Covance	***(Meyrin)***	*in 2019*
Debiopharm	**(Martigny)**	May 4th 2018
Eclosion Foundation, Biotech Campus	**(Plan-Les-Ouates)**	March 20th 2018
Ferring Pharmaceuticals	**(St Prex)**	April 18th 2018
Vacheron-Constantin	**(Meyrin)**	April 13th 2018

Dates to be given soon

CILS traineeships

Companies that might offer a 6 month practical training to CILS students

Adipogen International	**(Epalinges)**
Covalab Biotechnology	**(Lyon, France)**
Debiopharm	**(Lausanne)**
Ferring Pharmaceuticals	**(St Prex)**
Firmenich	**(Geneva)**
Galenica	**(Bern)**
Gene Predictis	**(Lausanne)**
Givaudan	**(Vernier)**
Menicon	**(Geneva)**
Merck Serono	**(Vevey)**
Nestlé Health Sciences	**(Epalinges)**
NovImmune	**(Geneva)**
Pierre Fabre	**(Saint-Julien-en-Genevois)**
Quartz Bio SA	**(Geneva)**
Quotient BD	**(Eysins)**
Shire	**(Neuchâtel)**
Triskel	**(Geneva)**
UBC	**(Geneva)**

For Professional internships, contacts will be provided through the Unige Career-Center platform.

Agenda

Remark: Due to professional agenda of our lecturers, following agenda may be subject to last-minute modifications

19.02.2018	20.02.2018	21.02.2018	22.02.2018	23.02.2018
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
INTRODUCTION CILS program room A04.2906	course 1 session 1 D. Hotz - B. Baumeister 10:00-17:00 room A04.2906	course 4 session 1 F. Curtin/D.Warne 08 :15-12 :00 UNIMAIL room MS040	course 12 / S. HURST 10 :15-12 :00, bat. C, S4-S5 course 3 session 1&2 A.McAllister 13:30-17:00 room B02.2526	
26.02.2018	**27.02.2018**	**28.02.2018**	**01.03.2018**	**02.03.2018**
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
			course 12 / S. HURST 10 :15-12 :00, bat. C, S4-S5 ~~course 3~~ ~~sessions 3&4~~ ~~A.McAllister~~ ~~13:30-17:00~~ ~~room D60~~	
05.03.2018	**06.03.2018**	**07.03.2018**	**08.03.2018**	**09.03.2018**
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
course 3 sessions 5&6 S.Latour 13:30-17:00 room A04.2713		course 4 session 2 F. Curtin/D.Warne 08 :15-12 :00 UNIMAIL room MS040	course 12 / S. HURST 10 :15-12 :00, bat. C, S4-S5 course 10 session 1 D.Kraus 13:30-16:30 room D60	
12.03.2018	**13.03.2018**	**14.03.2018**	**15.03.2018**	**16.03.2018**
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
course 11 (08:00) 08:30-12:45 room TBD	course 11 08:30-12:45 room TBD	course 11 08:30-12:45 room TBD	course 11 08:30-12:45 room TBD course 10 session 2 D.Kraus 13:30-16:30, room A04.3011	course 11 08:30-13:45 room TBD + EXAM
19.03.2018	**20.03.2018**	**21.03.2018**	**22.03.2018**	**23.03.2018**
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
course 3 sessions 3&4 A.McAllister 13:30-17:00 room S4-S5	Eclosion Campus Biotech site visit (Plan-Les-Ouates)	course 4 session 3 F. Curtin/D.Warne 08 :15-12 :00 UNIMAIL room MS040	course 12 / S. HURST 10 :15-12 :00, bat. C, S4-S5 course 3 / session 7&8 / A. Naik 13:30-17:00 room A04.2713	
26.03.2018	**27.03.2018**	**28.03.2018**	**29.03.2018**	**30.03.2018**
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
course 3 sessions 9&10 S.Latour 13:30-17:00 room A04.2713	Course 7 J. Camblong 13 :30-17:30 room A04.2711	Course 7 J. Camblong 08 :30-17:30 room A04.2711	course 12 / S. HURST 10 :15-12 :00, bat. C, S4-S5 course 10 session 3 K.Houshang Pour 13:15-17:00 room D60	Good Friday
02.04.2018	**03.04.2018**	**04.04.2018**	**05.04.2018**	**06.04.2018**
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Easter			course 10 session 4 P. Weibel 13:15-15:00 room A04.3011	course 1 session 2 D. Hotz - B. Baumeister 10:00-17:00 room A04.3011

	09.04.2018	10.04.2018	11.04.2018	12.04.2018	13.04.2018
15	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8	course 9 A. Sadler 08:30-11:30; room A04.2906	course 9 A. Sadler 08:30-11:30; room A04.2906	course 4 session 4 F. Curtin/D.Warne 08 :15-12 :00 UNIMAIL room MS040		Vacheron Constantin site visit (Meyrin)
9					
10					
11					
12					
13				course 10 session 5 K.Houshang Pour 13:15-17:00 room A04.2906	
14					
15					
16					
17					
	16.04.2018	17.04.2018	18.04.2018	19.04.2018	20.04.2018
16	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8	course 8 J. Boccadoro 08:30-11:30; room A04.2906		course 8 J.Repiton 08:30-18:30	course 12 / Samia HURST 10 :15-12 :00, bat. C, S4-S5	course 1 session 3 D. Hotz - B. Baumeister 10:00-17:00 room A04.2906
9					
10					
11					
12					
13				course 10 / L. Miéville session 6 13:15-17:00 room A04.2906	
14					
15			(at Ferring's, in Saint-Prex)		
16					
17					
	23.04.2018	24.04.2018	25.04.2018	26.04.2018	27.04.2018
17	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8	course 5 / M. Kosco-Villebois 08:30-10:00 room A04.2706	course 5 / N. Fischer 08:30-10:00 room A04.2706	course 4 session 5		
9					
10	course 5 / Z. Johnson 10:30-12:00 room A04.2706	course 5 / G. Magistrelli 10:30-11:15 room A04.2	F. Curtin/D.Warne	course 12 / Samia HURST 10 :15-12 :00, bat. C, S4-S5	course 1 session 4 D. Hotz - B. Baumeister 10:00-17:00 room A04.2906
11			08 :15-12 :00		
12			UNIMAIL room MS040		
13	course 2 room A04.2906	course 5 / A. Haines 13:30-14:15 room A04.2706		course 2 room D60	
14	session 1	course 5 / A. Carron 14:30-15:15 room A04.2706		session 2	
15	M. Prunotto			M. Prunotto	
16	13:00-17:00			13:00-17:00	
17					
	30.04.2018	01.05.2018	02.05.2018	03.05.2018	04.05.2018
18	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8	course 5 / V. Buatois 08:30-10:00 room A04.2706				
9					Debiopharm site visit (Martigny)
10	course 5 / R. Nelson 10:30-12:00 room A04.2706			course 12 / Samia HURST 10 :15-12 :00, bat. C, S4-S5	
11					
12		Labor day			
13				course 2 room A04.2906	
14	course 5 / S. Salgado-Pires		course 5 / K. Masternak	session 3	
15	13:30-15:00 room A04.2706		14:30-16:00 room A04.2706	M. Prunotto	
16				13:00-17:00	
17					
	07.05.2018	08.05.2018	09.05.2018	10.05.2018	11.05.2018
19	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8			course 4		
9	course 5 A. Proudfoot 09:00-10:00 room A04.2910		session 6 + EXAM		
10	course 5 / W. Ferlin		F. Curtin/D.Warne		
11	10:30-12:00 room A04.2910		08 :15-12 :00		
12			UNIMAIL room MS040		
13				Ascent	
14					
15					
16					
17					
	14.05.2018	15.05.2018	16.05.2018	17.05.2018	18.05.2018
20	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8					
9		Course 6 / G. Tanackovic			
10			course 6 / D. Kraus	course 12 / Samia HURST	
11		08:30-12:00	10:15-12:00; room A04.3018	10 :15-12 :00, bat. C, S4-S5	
12		room A04.3018			
13	~~course 2 room A04.2906~~		course 3		
14	~~session 4~~	Course 6 / G. Tanackovic	Wrap-up session		
15	~~M. Prunotto~~		A.McAllister		
16	~~13:15-17:00~~	13:00-17:00	13:30-17:00		
17		room A04.3018	room A04.3018		
	21.05.2018	22.05.2018	23.05.2018	24.05.2018	25.05.2018
21	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8					
9					
10				course 12 / Samia HURST	course 1
11				10 :15-12 :00, bat. C, S4-S5	session 5
12	Pentecost				D. Hotz - B. Baumeister
13				course 2 room A04.2906	10:00-17:00
14				session 5	+ 2 external speakers ??
15				M. Prunotto	room A04.2906
16				13:15-17:00	
17					
	28.05.2018	29.05.2018	30.05.2018	31.05.2018	01.06.2018
22	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
8					
9					
10					
11					
12					
13					course 2 room A04.2713
14					session 4
15					M. Prunotto
16					13:15-17:00
17					

Notes

Notes

CILS Board Members

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