



Advanced course in Developmental Biology and Regenerative Medicine (total 9 ETC)

Course period: Autumn 2020

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Please observe that the course organizers leave the possibility to make adjustments depending on the pandemic situation, as well as trying individually tailor the master program course content depending on possibilities, interest and needs for students.

Description

The main objective of this advanced course is to introduce students to the latest advances within the field of stem cells in the context of developmental biology towards embryology, cells signaling and regenerative medicine. The implications for the gene and cell therapy product drug development will also be introduced. This course emphasizes the importance of sex and gender aspects in biomedical research. Finally, this course includes activities related towards strengthening transferable skills via inclusion of experience design and creativity, in combination of science communication and collaboration with the TEDx Stockholm community. As part of this advanced course, students will participate in modules that are offered as courses for doctoral students. The students will also participate in a web-based learning module, problem-based learning and in seminar series/workshops.

Course 1 Gene Regulation in the Early Human Embryo Doctoral course 3080 (1.5 points)

2019-09-16- 2019-09-20

Course leader: Jose Inzunza

Location: Flemingsberg campus

The aim of the course is to instruct the participants in human reproductive biology with focus on gene regulation and pathways that control the early embryo formation. To provide understanding in complexity of the molecular mechanisms that involve the successfully development of the early cleavage embryo, so that the student can evaluate, troubleshoot and improve existing assisted reproductive technology (ART) systems.

<http://kiwas.ki.se/katalog/kursplan/show/2210>

Course 2. Cellular Signaling. Doctoral course 3049 (1.5 points)

2019-10-12 -- 2019-10-16

Course leaders: Anna Witasp and Thomas Ebert

Location: Flemingsberg campus

The purpose of the course is to give a broad view of various signaling pathways and enable to identify common themes on protein-protein and protein-lipid interactions. The students shall learn on how signal transduction occurs through a highly regulated cascade of events in the side cells. The student should identify and reflect the knowledge (general methodology and theoretical concepts) gained with the benefit for their own research.

<http://kiwas.ki.se/katalog/kursplan/show/2141>

Course 3. Gene and Cell Therapy Product (ATMP) Drug Development Doctoral course 3218 (1.5 points)

2020-11-16—2020-11-20

Course leader: Heather Main

Location: Flemingsberg campus

In this course, the students acquire an understanding of how to develop a gene or cell therapy product (ATMP), including Good Manufacturing Practice (GMP) production and proving efficacy through clinical trials. The



course provides a broad understanding of ATMP development from a research idea to registration as an approved form of therapy where the cost of treatment is covered by the state. Students will learn about the European Medicines Agency (EMA) regulations for ATMP and requirements for commercial models and health economy considerations. This broad scope gives students access to information and contacts for a plethora of future career opportunities in ATMP development and provides an opportunity to build both national and international networks.

<http://kiwas.ki.se/katalog/kursplan/show/2450>

Course 4. Sex and Gender in Biomedical Research (1 point)

September-December 2019

Flexible location (will be informed later).

Course leaders: Karolina Kublickiene; Hong Qian and Liam Ward

Web-based course developed by the Canadian Institute of Gender and Health. An interactive module designed to improve the ability to account for sex and gender in biomedical research together with workshops and seminars (Meet an expert-Get inspired). This year an international course is planned with involvement of teachers and trainees from Canada and other EU countries (**prelim dates 2020-10-19 to 2020-10-21**).

Similar to <http://kiwas.ki.se/katalog/kursplan/show/1861>

Seminars in the field of Regenerative Medicine, in collaborations with HERM and StratRegen (2 points)

More detailed plan will be provided later, more information under <https://ki.se/en/research/strategic-research-area-sra-in-stem-cells-and-regenerative-medicine>

September-december 2020

Location: Solna; Flemingsberg campus

The seminar series will cover latest news in stem cell biology towards appreciation for applications in regenerative medicine. Web-based learning, problem-based learning, seminars/symposium in Regenerative Medicine will be implemented. The seminar occasions will coincide with some HERM seminars. The students will have to read 2 original articles in advance of each seminar. These will be distributed at least one week before the seminar. After each seminar the course participants will participate in a Question/Answer (Q/A) session (about 60min) with the speaker. This will be followed by an additional group discussion on the seminar-related research questions raised by the participants. The summary of the discussion should be reported to the class and the course organizers. The responsible person will be Hong Qian PhD with her team at HERM.

Seminars/workshops/group assignments and additional web-based activities together with other students involved in DEVREG doctoral education (1.5 points)

September-december 2020

Leaders: Karolina Kublickiene and Hong Qian;

Science communication, biomedical topics of interest to the society, events organized within the DevReg program, collaboration with TEDx Stockholm community and their organized events.

For example:

Enabling Skills to Leverage Your Career:

To succeed in any field of activity you need to be able to influence other people in addition to having the essential technical skills. This influence does not come from any innate "charisma" but is the result of applying techniques that anyone can learn. A person who is able to influence others is more likely to be hired, promoted, funded or simply listened to.

At the heart of these techniques are three essential skills that everyone should master: how to build an influencing network, how to speak effectively and how to write persuasively. In these workshops Andrew Hennigan will equip participants with a core toolkit that will enable everyone to begin developing their skills in these three key areas:

1. **Network Like an Influencer;**



2. **Speak Like a TED Speaker;**
3. **Write Like a Journalist**

Or

The Unexpected Biology of Teamwork

“Teamwork” and “team building” have acquired a negative perception in many workplaces because of well-meaning but inappropriate team-building exercises that are more likely to end in tears than in any lasting benefit. In this talk we look instead at the evolutionary biology behind our literally extraordinary ability to work in groups with a “joint mentality”, a capability other species can only dream of, and how we can apply this knowledge to make our everyday work more effective and less stressful.

Or

Making the Impossible Happen: Reframing “Can it be done?”

Often desired outcomes are dismissed as “impossible”, but this is simply a consequence of a simplistic approach where people ask the question “Can it be done?” and the answer is frequently no. But this is the wrong question to ask. By asking instead “What do we need to do to make it happen?” you focus attention not on the impossible but on what actions should be taken. Sometimes these actions might be challenging, but by facing them we can achieve goals once thought to be impossible.

For more details look at our program’s website to have an overview of courses and activities:

<https://staff.ki.se/doctoral-programme-in-development-and-regeneration-devreg-and-gendered-innovation-alliance>

A promotional banner for the Doctoral Programme in Development and Regeneration (DEVREG) and Gendered Innovation Alliance. The banner is split into two main sections. On the left, there is a dark purple background with a faint image of a developing embryo. The text on the left reads: "Doctoral Programme in Development and Regeneration (DEVREG) and Gendered Innovation Alliance". Below this, in smaller white text, it says: "Developmental biology and regenerative medicine are regarded as strategic research areas at KI. The doctoral programme, connected to Renal Medicine at CLINTEC, aims to help students obtain a comprehensive view of the subjects and facilitates close contact with key experts in the field. As an added value, we provide resources and gender sensitive training to develop an open forum and network for KI - a Gendered Innovation Alliance." On the right side of the banner, there are two images of embryos. The left image shows a whole embryo with a green glow, and the right image shows a similar embryo with a green glow and some purple highlights, possibly indicating specific cells or structures.