AI Applications in Infection Biology

Monday May 20, 2024

Registration and welcome

10:00	**Registration and poster mounting**
12:00-13:00	**Lunch**
13:00-14:00	**Welcome and one-minute introductions by course participants** Laura Carroll, Umeå University Kemal Avican, Umeå University

Introduction Lectures
Chairperson:

14:00-14:45	**Machine learning fundamentals I** Geoff Pleiss, University of British Columbia, Canada
14:45-15:00	**Questions and discussion**
15:00-15:15	**Coffee**
15:15-16:00	**Machine learning fundamentals II** Geoff Pleiss, University of British Columbia, Canada
16:00-16:15	**Questions and discussion**
16:15-17:00	**Types of data used for infection biology studies** Kemal Avican, Umeå University, Sweden
17:00-17:15	**Questions and discussion**
17:15-18:00	**Break**
18:00-20:00	**Dinner**
20:00-21:00	**Meet and greet mingle**

Tuesday May 21, 2024

Imaging

Chairperson:

8:30-9:15   **Computational microscopy for cell biology**
Juliette Griffie, Stockholm University, Sweden

9:15-9:30   **Questions and discussion**

Workshop

Chairperson:

9:30-12:00   **Structural biology – AlphaFold**
Patrik Bryant, Stockholm University, Sweden

10:15-10:30   **Coffee during the workshop**

12:00-13:30   **Lunch**

13:30-14:30   **Poster Session I**
Poster walks in groups (5 min presentation + 5 min questions)

14:30-15:15   **Free poster viewing of "posters of the day"**

15:15-15:30   **Coffee**

Host-Microbe Interactions

Chairperson:

15:30-16:15   **Metagenomics for microbiome analysis**
Georg Zeller, European Molecular Biology Laboratory, Heidelburg, Germany

16:15-16:30   **Questions and discussion**

16:30-17:15   **Generative models for host cell simulation**
Wei Ouyang, Science for Life LAB, KTH Royal Institute of Technology, Sweden

17:15-17:30   **Questions and discussion**

17:30-18:00   **Break**

18:00-20:00   **Dinner**

Wednesday May 22, 2024

Data Ethics

Chairperson:

8:30-9:15   **Responsible AI and future challenges**
Juan Carlos Nieves Sanchez, Umeå University, Sweden

9:15-9:30   **Questions and discussion**

Workshop

Chairperson:

9:30-12:00   **Metagenomic data analysis with SIAMCAT**
Jacob Wirbel, Stanford University, California, USA

10:15-10:30   **Coffee during the workshop**

12:00-13:30   **Lunch**

13:30-14:30   **Poster Session II**
Poster walks in groups (5 min presentation + 5 min questions)

14:30-15:15   **Free poster viewing of "posters of the day"**

15:15-15:30   **Coffee**

Antimicrobials and Antimicrobial Resistance

Chairperson:

15:30-16:15   **Machine learnsing approaches for microbial natural product discovery**
Laura Carroll, Umeå University, Sweden

16:15-16:30   **Questions and discussion**

16:30-17:15   **Predicting antibiotic resistant pathogens**
Caroline Weis
GSK, Zurich, Switzerland

17:15-17:30   **Questions and discussion**

17:30-18:00   **Break**

18:00-20:00   **Dinner**

Thursday May 23, 2024

Workshop

Chairperson:

8:00-12:00 **Introduction to automated science**
Paul Jensen, University of Michigan, Michigan, USA
Mark Hendriks, Whitman College, Washington, USA

10:15-10:30 **Coffee during the workshop**

12:00-13:30 **Lunch**

13:30-16:30 **Workshop continues**

15:00-15:15 **Coffee during the workshop**

16:30-17:30 **Poster Session I**
Poster walks in groups (5 min presentation + 5 min questions)

17:30-18:00 **Free poster viewing of "posters of the day"**

18:00-20:00 **Course Dinner**

Friday May 24, 2024

Surveillance

Chairperson:

8:30-9:15   **Machine learning in pathogen surveillance**
Tania Dottorini, University of Nottingham, United Kingdom

9:15-9:30   **Questions and discussion**

9:30-10:15   **Antimicrobial resistance in the environment**
Johan Bengtsson-Palme, Chalmers University of Technology, Sweden

10:15-10:30   **Questions and discussion**

10:30-10:45   **Coffee**

10:45-11:30   **Climate change and infectious disease**
Joacim Rocklöv, University of Heidelberg, Germany and Umeå University, Sweden

11:30-11:45   **Questions and discussion**

11:45-13:00   **Lunch**

13:00:13:30   **Concluding remarks, evaluation, and course certificates**

14:00   **Departure**
Bus to Arlanda airport
Bus to Stockholm Central Station