

Workshop on Genomics

Český Krumlov
2015



objectives of this presentation

- information about the setting and logistics
- background about the Workshop
- establish an appropriate set of expectations

frequently asked questions

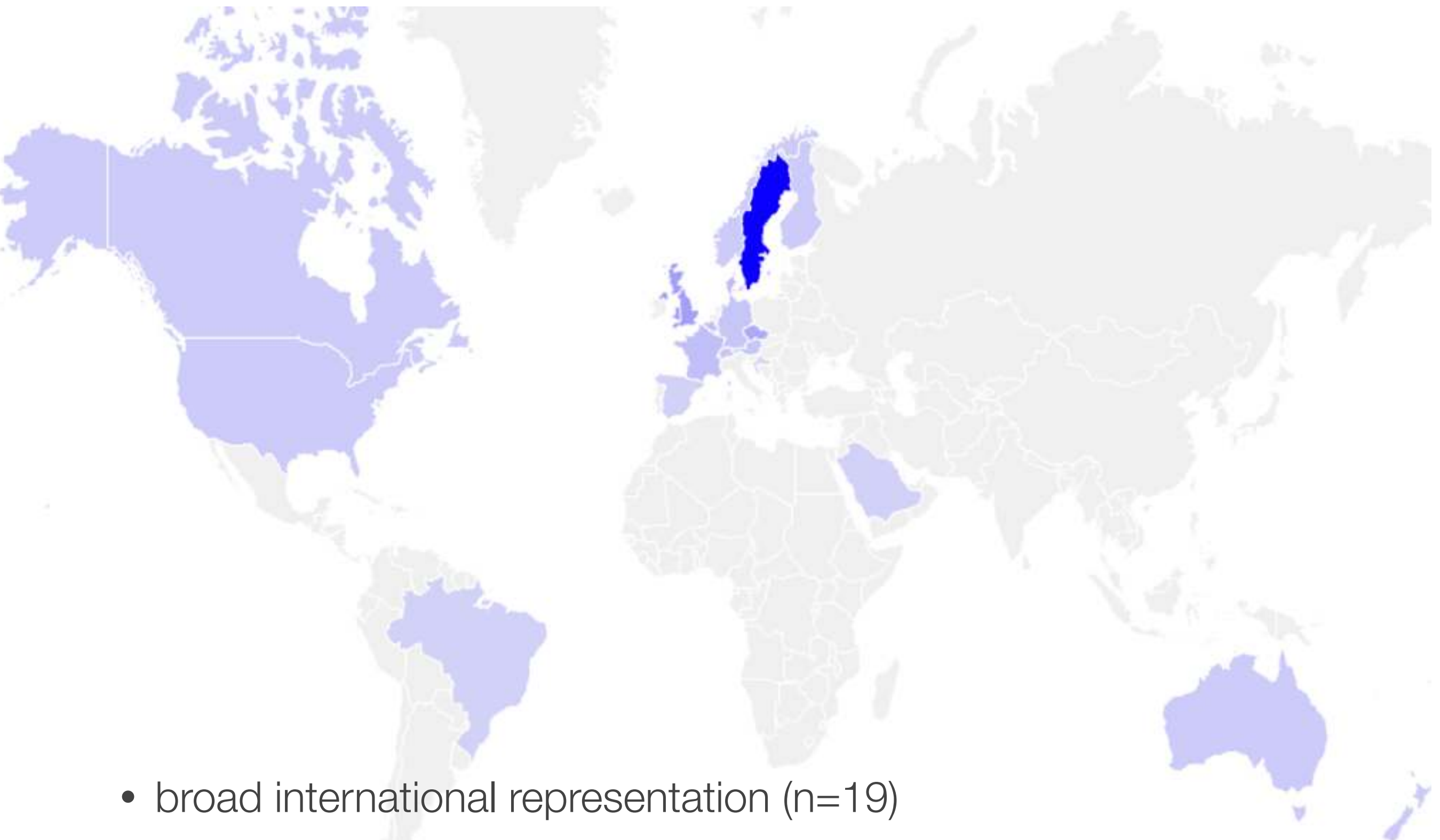
- Where is the restroom?
- Coffee breaks?
 - at 10:00, free coffee & tea (theatre), available at all times (computer lab)
- Internet?
 - Theatre Café, House of Prelate (computer lab)
- Where & when do I eat?
 - Workshop Google Map
 - times: 12-14, 17-19
- Where is the pub?
- Where is the computer laboratory?

who



you

- proportions (n = 83)
 - 0.46 graduate students (0.41/0.39/0.52)
 - 0.33 postdoctoral scholars (0.38/0.32/0.34)
 - 0.05 staff and other (0.1/0.22/0.06)
 - 0.12 faculty/principal investigators (0.11/0.07/0.07)



- broad international representation (n=19)
Sweden (n=27); UK (n=9); Czech Republic (8); Denmark (5); Belgium, France (4); Austria, Germany, Switzerland, US (3); Australia, Canada, Finland, New Zealand, Norway (n=2); Brazil, Croatia, Saudi Arabia, Spain (n=1)

research interests

transcriptomics

comparative genomics

population genomics

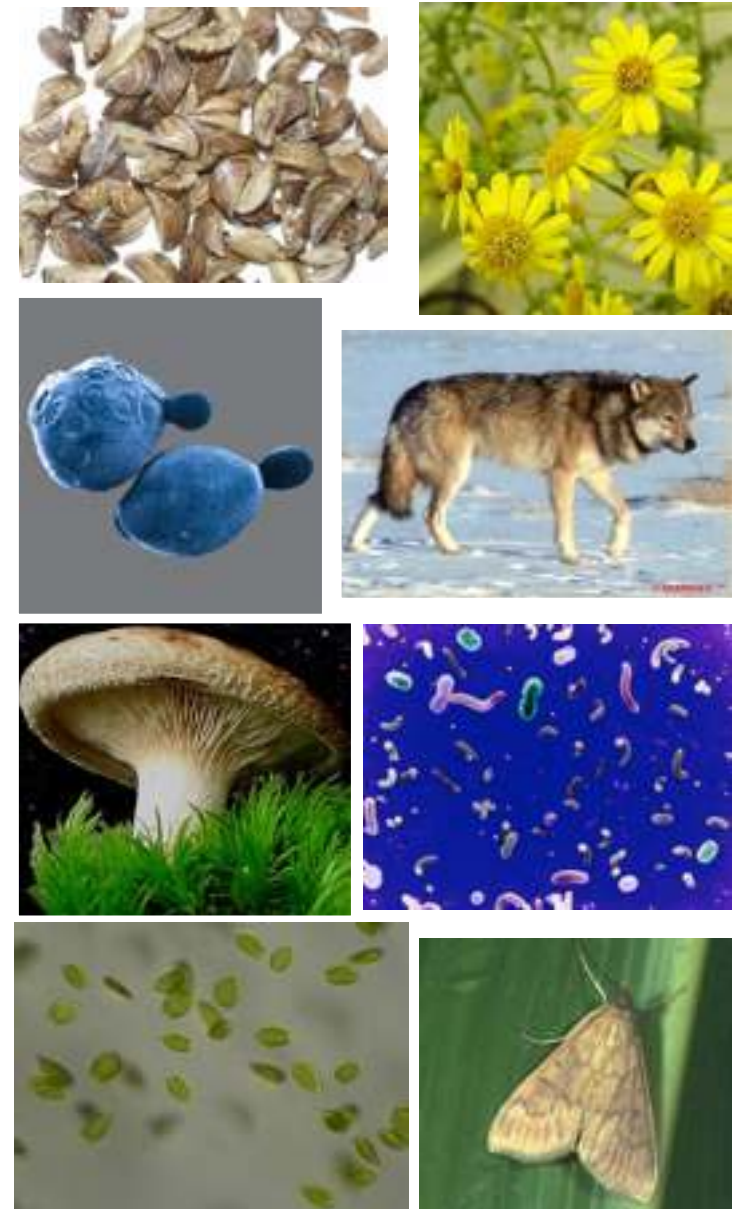
metagenomics

microbial biodiversity

phylogenomics

evolutionary genomics

ecological genomics



us: instructors and co-directors



Dag Ahrén Alper Kucukural Ludovic Dutoit Guy Leonard Jordi Paps Josie Paris Daniel McDonald Sophie Shaw

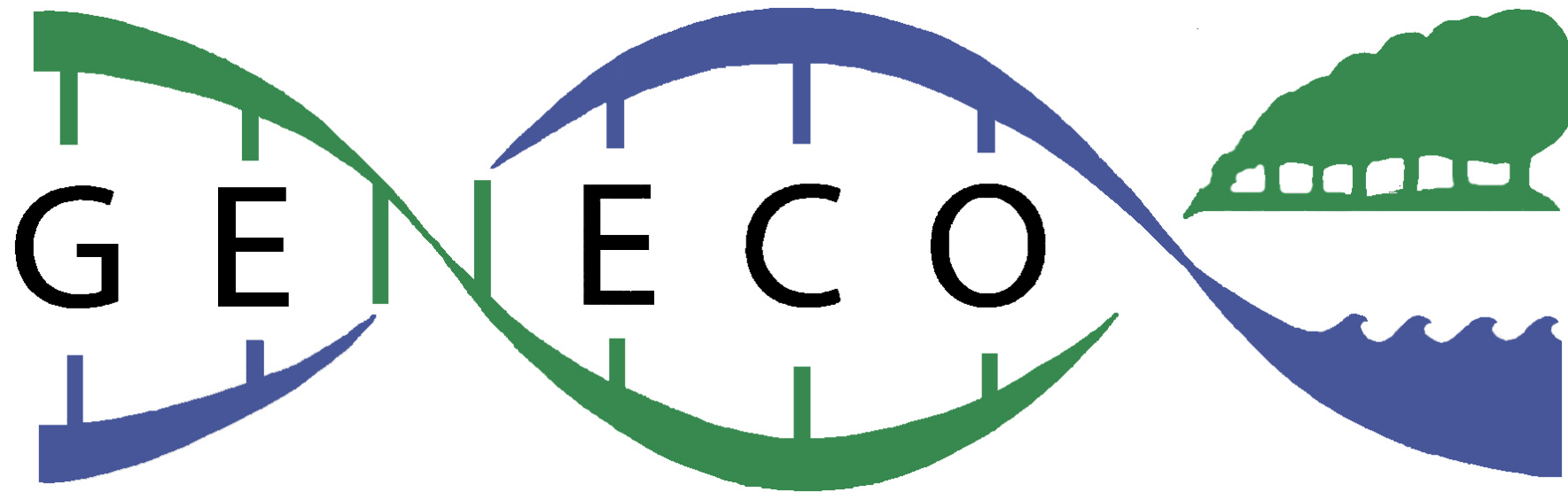


Scott Handley Konrad Paszkiewicz Karin Rengefors Naiara Rodríguez-Ezpeleta

faculty

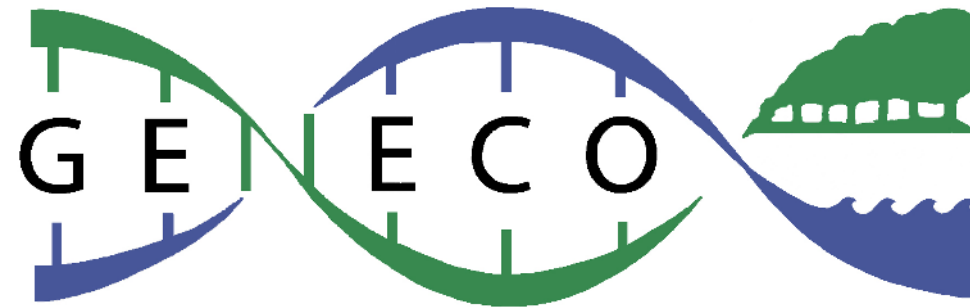


partners & sponsors



Graduate Research School in Genomic Ecology
LUND UNIVERSITY, SWEDEN





- Interdisciplinary graduate school for PhD students in Genomic Ecology
- Genomic Ecology - interface between ecology & evolution, molecular biology and genomics
- GENECHO was funded by the Swedish Research Council, from 2013 by the Faculty of Science, Lund University



GENECO Program

PhD students & content

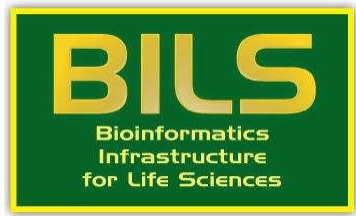
- 100 past and current PhD students
- Universities in Sweden, Norway, and Finland
- Activities: Annual Winter & Summer Meetings, PhD courses, Mentor programs, travel grants

Courses

- **Understanding population genetics**
- **Conservation & landscape genetics**
- Introduction to molecular ecology
- Quantitative PCR
- **R in Biology**
- Sequencing to assess microbial diversity: high throughput sequencing and amplicon sequencing
- RAD sequencing & analyses
- Phylogenies using NGS data

see www.geneco.se

Sponsor of Workshop on Genomics



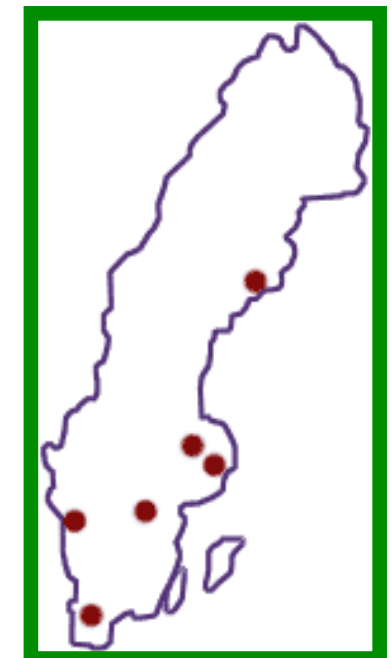
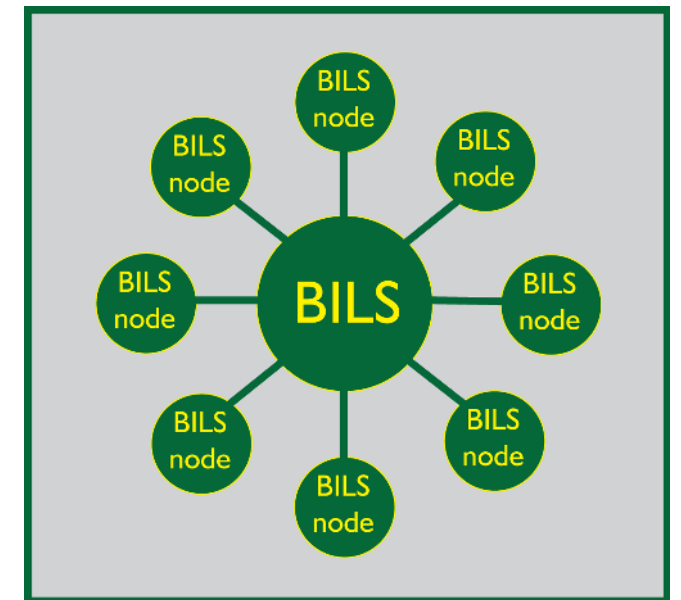
BILS — Bioinformatics Infrastructure for Life Sciences

Swedish national research infrastructure
supported by the Swedish Research Council

BILS provides bioinformatics support

BILS provides infrastructure and tools for
bioinformatics analyses

Bioinformatics network
nodes at each of the 6 large university cities
workshops & training



what this workshop is

background

Workshop on Molecular Evolution

- focused on molecular phylogenetics and population genetics
- Woods Hole, Marine Biological Laboratory, USA

- Workshop on Comparative Genomics
 - ▶ Czech Republic - January 2011
 - ▶ Fort Collins, USA - July 2011
 - ▶ Smithsonian Institution - November 2011

workshop philosophy

- immersive and intensive
- workshop not a symposium
- friendly
- isolated & idyllic

why Český Krumlov



important considerations

- relatively inexpensive
- relatively isolated
- idyllic
- conveniently and centrally located in Europe
- appropriate infrastructure
- outstanding support from the town

schedule

- Workshop website
 - <http://evomics.org>

Week 1



Monday

*Workshop and Cesky
Krumlov introduction*

*Laboratory introduction
Participant discussions*

Tuesday

Sequencing Technology

*Unix lab
Data quality control lab*

Wednesday

Study Design

Advanced unix

Thursday

Alignment methods

Genomics lab

Friday

Assembly

Assembly lab

Saturday

Structural variation

Cont. labs

Week 2



Monday

Metagenomics

Metagenomics lab

Qiime lab



Tuesday

RAD sequencing

STACKS lab



Wednesday

Transcriptomics

Transcriptomics lab



Thursday

Evolutionary genomics

Single-cell genomics

Open lab



Friday

Ecological genomics

Pathogenomics

participant discussions: scientific speed networking

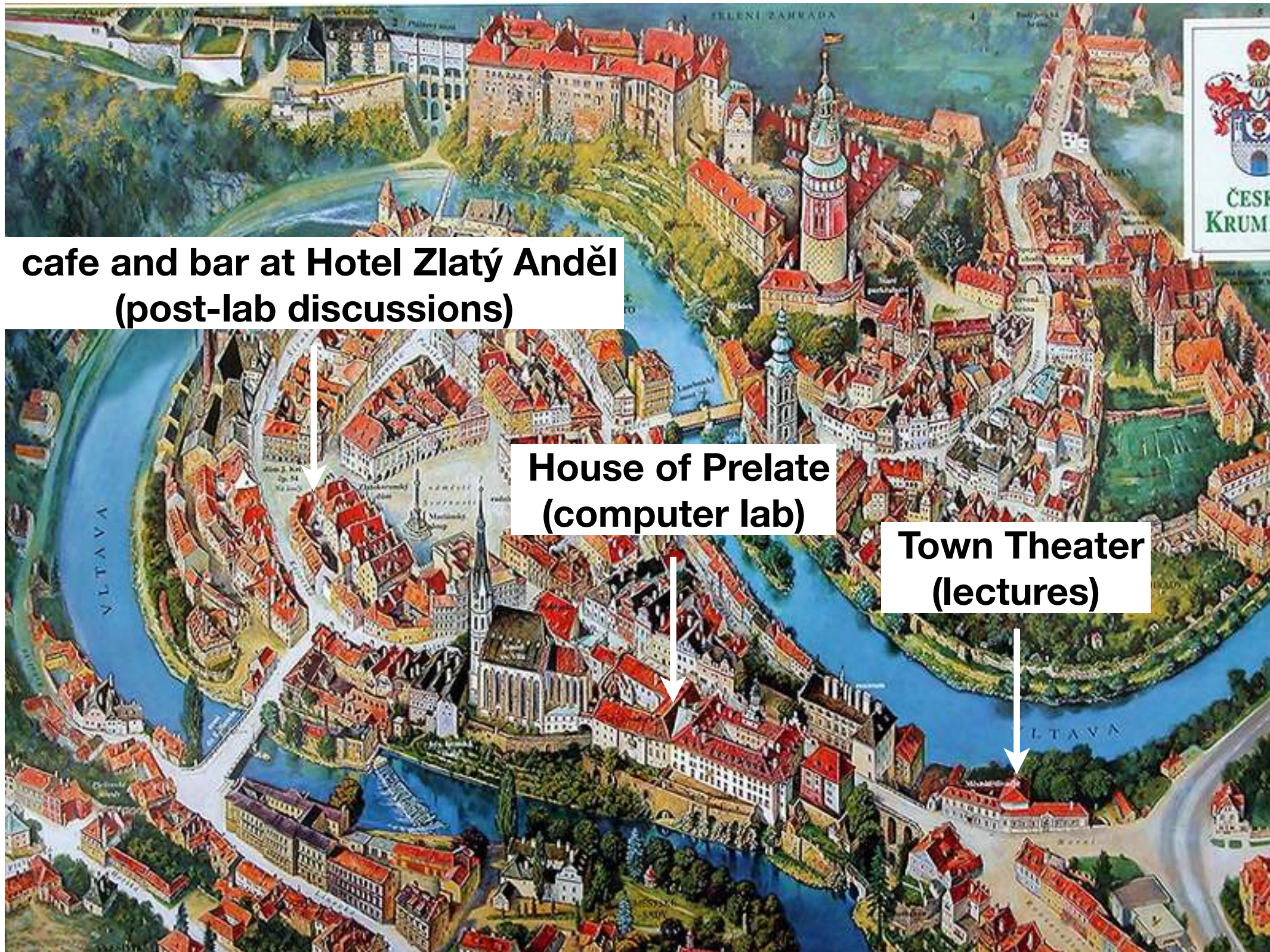
- goals:
 - get to know each other
 - learn about the other participant research interests and projects
 - learn which approaches and methods other participants work with

Social Events

- Saturday
 - Meet at approximately 17:30 (Town Square) to take a group tour of Český Krumlov
 - Tour will finish at Eggenberg Brewery beer tasting & dinner
- Sunday
 - Information from Daniel Kintzl, CK Infocentrum
- Friday (23rd) - you plan end-of-workshop dinner & party

where

here



expectations

realistic expectations

- exhaustion
- frustration
 - bioinformatics applications are moody
 - >90 people on-line simultaneously
 - you will not finish every exercise during the allotted session
- you will not become an expert in 2 weeks...

SO...

- take breaks
- get enough sleep
- be patient
- ask questions! (faculty, instructors, participants)
- **work in pairs/groups**
- continuation/open labs
- everything will be available on the web-site after you leave
-enjoy!

discussion opportunities

- extensive opportunities for discussions
 - with faculty
 - with instructors
 - with other participants
- faculty arrival and departure dates are on the web site



computer lab



House of Prelate

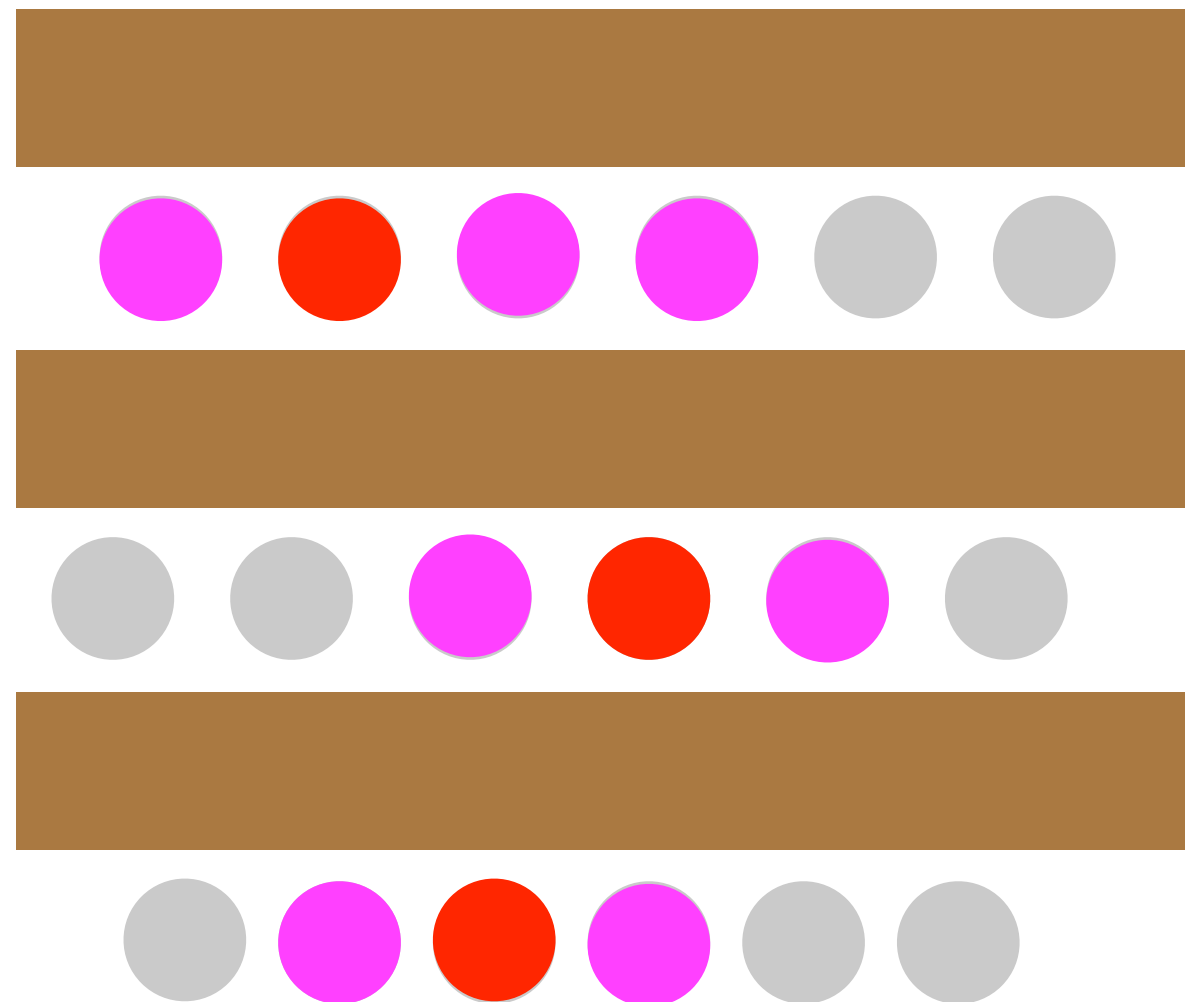
general lab policy issues

- no food or drink inside computer hall
- wipe feet before entering
- coats in coat room
- do not touch walls (frescoes)
- we have strict arrival and departure times



Laboratory Best Practices

- Work together in pairs/groups
 - Variations in expertise
 - Variations in patience



post-lab discussions

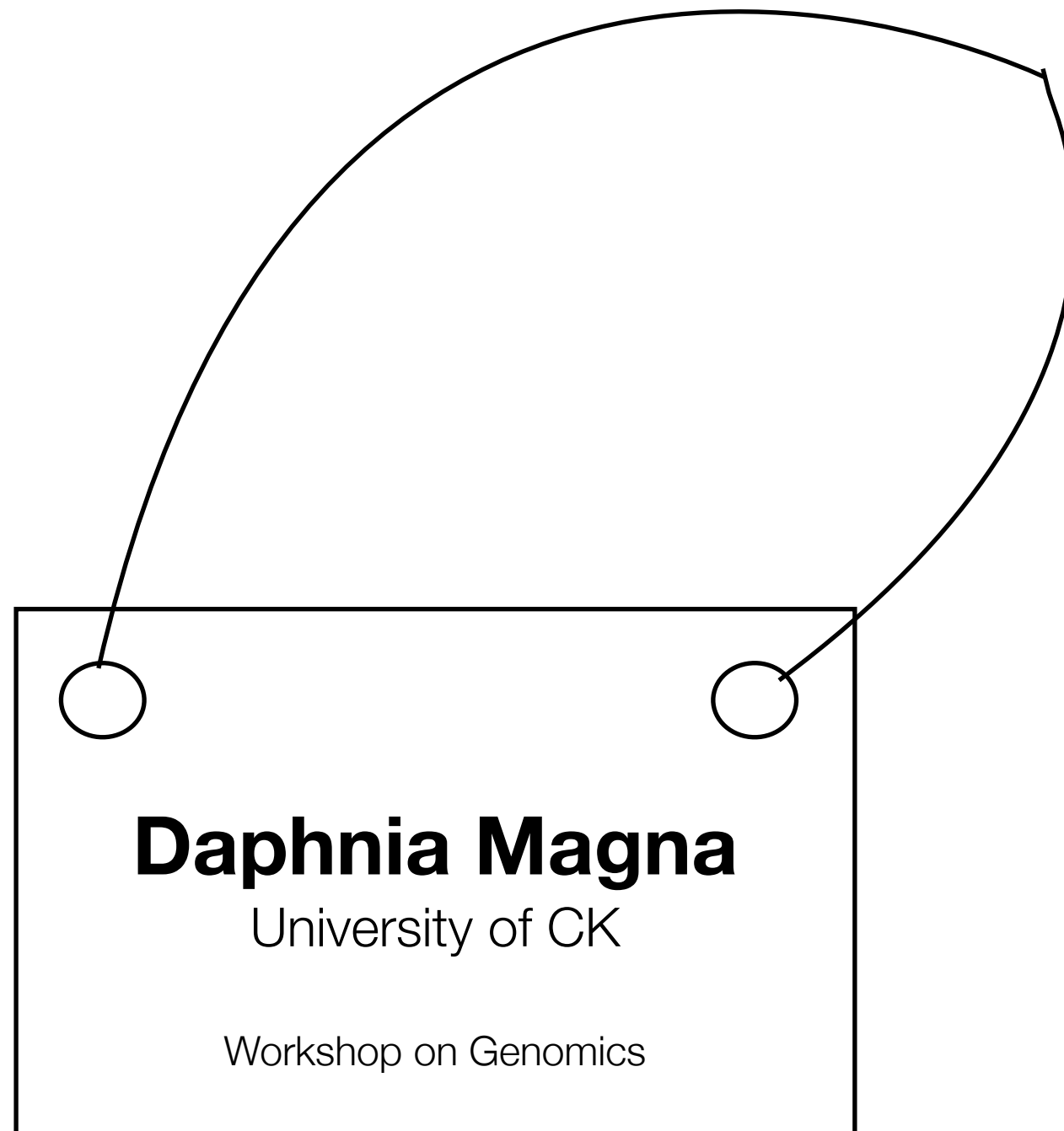
- an important feature of the Workshop
- Music Bar or Festi Bar behind Hotel Zlatý Anděl



t-shirt competition

- <http://evomics.org/registration-form/t-shirt-competition/>
- the top designs will receive a very special gift
- fame, fortune! your design will be worn by people from around the world for years to come
- submit by THURSDAY

Please wear your name tag!



communication during workshop

- workshop website: **evomics.org**
- Twitter: **#evomics2015**
- Facebook: **Workshop on Genomics**

next

- Information by Daniel Kintzl
- Coffee/tea break
- Walk over to House of Prelate
- start again at 14.00 (2 pm)
House of Prelate



us: instructors and co-directors



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