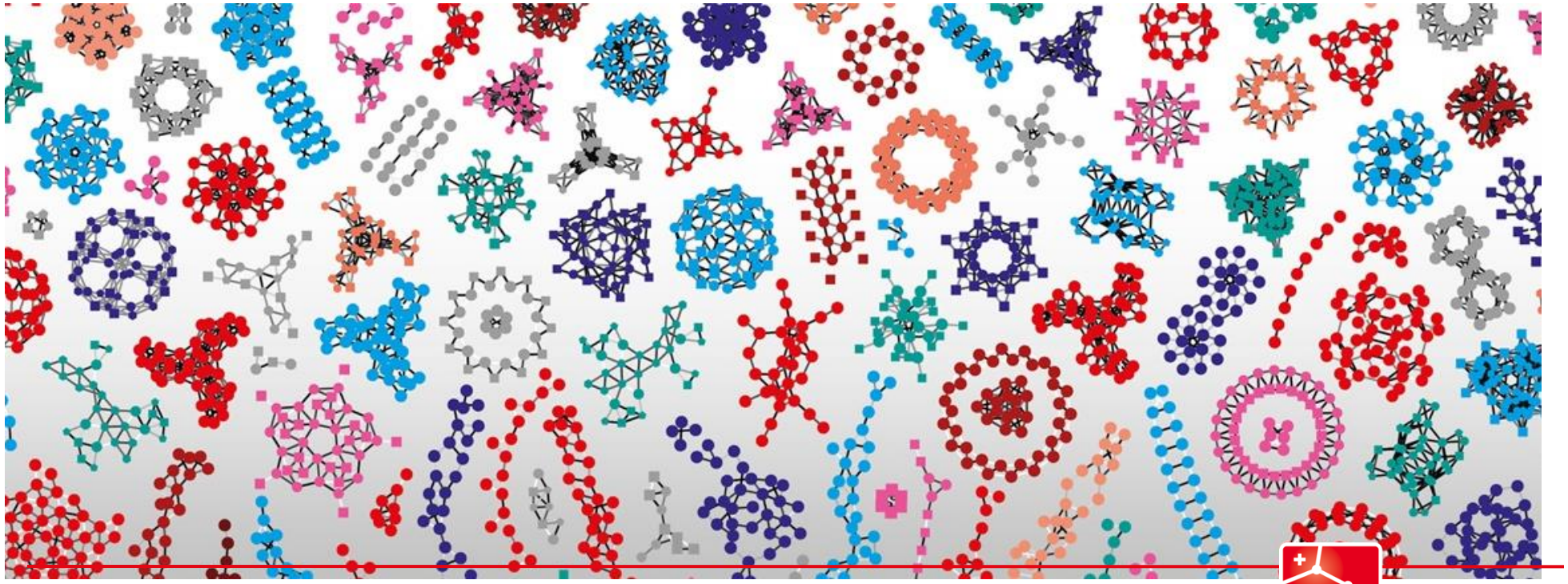

Swiss Institute of Bioinformatics

Data Science in Practice

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About this course-What you will learn:

- Become a real-life bioinformatician
- Work on real-life datasets, with its problems (can be very standard but also less standard problems)
- Get to work in groups to discuss statistical but also computational issues.
- Find where to find answers to your problems.
- Practice data analysis.
- Learn from your neighbors.
- Don’t be shy, each one of you will have something to add/offer to any discussion!

About this course- What you will NOT learn

- Basic introduction to statistics.
- More « intermediate » statistical concepts.
- Standard course with concepts followed by application of the concepts.

Schedule-tentative

Day 1:

9h: Welcome - Get to know
9h20: Introduction
10h00: coffee break
10h30-12h00 : qPCR
12h00-13h00 : Lunch
13h00: knitr
13h30: Exercises
14h30-coffee break
14h45- Presentation - GROUP 1
15h30- Dataset 2
17h00- end of day 1

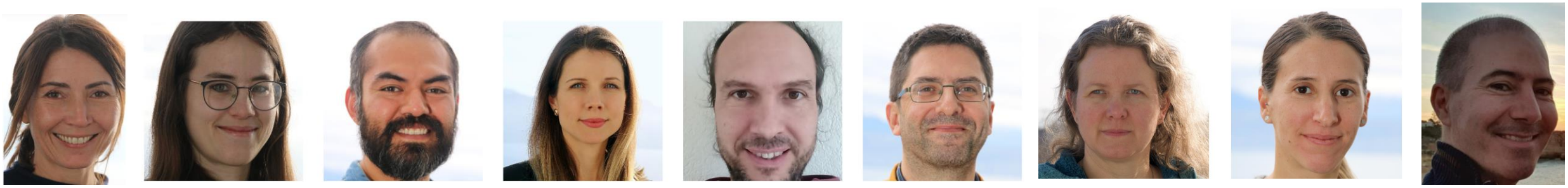
Day 2:

9h: Welcome - Presentation - GROUP 2
9h45-10h30: Theory
10h30-10h45 -coffee break
10h45-11h45- Dataset 2 (again)
11h45-12h15 Presentation - GROUP 3
12h15-13h15 Lunch
13h15- 14h30 Simulations
14h30-15h00 Presentation-GROUP 4
15h00-16h30 BC
16h30-17h00 Presentation-GROUP 5

Translational data science TDS

We ❤ OMICS

- https://www.linkedin.com/company/tds-facility/
- https://agora-cancer.ch/scientific-platforms/translational-data-science-facility/



We are happy to hear about your projects and problems!
We work as a facility with transdisciplinary collaborations.
We are a team of bioinformaticians coming from very different backgrounds.

CONTACT US! @**tds-facility@sib.swiss**

Now a round of table

- Let us know who you are, your background, what you are working on and where, and what type of data you might have to analyse (at some point) or what you expect from this course.

Small reminder of Introduction to statistics

- * This is not a full reminder *
- Start with understanding your data and plotting it *in the right way*.
- Put the question in the form of a biological null hypothesis and alternate hypothesis.
- Put the question in the form of a statistical null hypothesis and alternate hypothesis.
- Choose the appropriate statistical test for your question.
- Test hypotheses of the test you have performed.
- Discuss the results.

Small reminder of introduction to statistics

- Possible tests you have learned during an Intro to stats course.
- One-sample t-test, two-sample t-test, paired t-test
- What to do with more than two groups comparison (ANOVA, multiple t-tests with corrections etc)
- Parametric and non parametric tests (or what to do if data is not normally distributed, and you think a non parametric test would suit your question), like Wilcoxon rank-sum test.
- The importance of multiple testing corrections
- Correlation/regression as well as clustering and PCA.

What to do if you already feel overwelmed:

- Ask your neighbors (Interactive course)
- Do a quick search for refreshment on google on some of the stats concepts
- Ask us!