Summer School on Metabolic Modeling

From Constraints, to Kinetics and Machine Learning
September 17–19, 2025
University of Milano-Bicocca, Italy

The Summer School on Metabolic Modeling offers an in-depth, hands-on overview of current methods in computational systems biology, with a focus on metabolic networks. Participants will explore:
- Constraint-based modeling and data integration
- Kinetic and multiscale models of central metabolism
- Applications of machine learning to metabolic systems

The school is designed for PhD students, postdocs and researchers interested in learning both the theoretical foundations and practical tools for modeling metabolism across biological scales.

Scientific and organizing committee: Marco Vanoni, Chiara Damiani, Pasquale Palumbo and Valentina Pasquale

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Consolidation of the Italian Infrastructure for Omics Data and Bioinformatics

BtBs
Dipartimento di Biotecnologie e Bioscienze

UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA

SYSBIO
CENTRE OF SYSTEMS BIOLOGY
ITALIAN RESEARCH INFRASTRUCTURE
ISBE ASSOCIATE PARTNER

Speakers and Contributors

Name	Institution
Chiara Damiani	University of Milano-Bicocca
Bas Teusink	Vrije Universiteit Amsterdam
Annalisa Occhipinti	Teesside University
Claudio Angione	Teesside University
Pasquale Palumbo	University of Milano-Bicocca
Daniela Gaglio	Italian National Research Council
Marco Vanoni	University of Milano-Bicocca
Lilia Alberghina	University of Milano-Bicocca

Application Information

To apply for the Summer School on Metabolic Modeling, please send a brief motivation letter to the following email address:

✉ metabolicschool@gmail.com

The deadline for submission is **July 30, 2025**.

Selected participants will be notified by the 12th of August 2025..

For any inquiries, feel free to contact the organizers.

Program

Wednesday, September 17th

Time	Title	Speaker	Type	Institution
14:30–15:00	Welcome and Opening Remarks	Marco Vanoni	Intro	University of Milano-Bicocca
15:00–16:00	Metabolomics in Action: Tools, Techniques and Applications	Daniela Gaglio	Intro Lecture	Italian National Research Council
16:00–17:30	Introduction to Constraint-Based Modeling and Data Integration	Chiara Damiani	Tutorial	University of Milano-Bicocca
17:30	Welcome Aperitif		Social Event	

Thursday, September 18th

Time	Title	Speaker	Type	Institution
09:00–10:30	Introduction to Machine Learning	Annalisa Occhipinti	Tutorial	Teesside University
10:30–11:00	Coffee Break		Break	
11:00–12:30	Integration of Clinical Data into Metabolic networks	Chiara Damiani	Hands-on	University of Milano-Bicocca
12:30–13:30	Lunch Break		Break	
13:30–15:00	Machine Learning Meets Metabolic Modeling	Claudio Angione	Lecture	Teesside University
15:00-15_30	Coffee Break		Break	
15:30–17:00	Fundamentals of Metabolism: from Steady State to Dynamical Behaviour	Bas Teusink	Lecture	Vrije Universiteit Amsterdam
17:00–18:30	Flash Talk Session 1	Students	Flash Talks	

Friday, September 19th

Time	Title	Speaker	Type	Institution
09:00–10:30	Multi-scale Modeling	Pasquale Palumbo	Tutorial	University of Milano-Bicocca
10:30–11:00	Coffee Break		Break	
11:00–12:30	Flash Talk Session 2	Students	Flash Talks	
12:30–13:00	Has the Warburg effect finally been explained?	Lilia Alberghina	Lectio magistralis	University of Milano-Bicocca