First Week

Mon, 18 Jan	Tue, 19 Jan	Wed, 20 Jan	Thu, 21 Jan	Fri, 22 Jan
Lecture (pre-recorded) G. Volpe M. Telo da Gama B. Liebchen	**Lecture** (pre-recorded) A. Callegari	**Lecture** (pre-recorded) A. Argun	Students work in groups (HW)	**Lecture** (pre-recorded) J. de Graaf
	10:30-11:30 AM ***Discussion:*** Molecular dynamics, basic concepts **HW is assigned** **Agnese Callegari**	**10:00-11:30 AM** **HW Presentation** ***Discussion:*** Stochastic equations, Langevin equation, Brownian Dynamics, ABD **HW is assigned** **Aykut Argun**	Students work in groups (HW)	**10:00-11:30 AM** **HW Presentation** ***Discussion:*** Advanced MD simulations: Hydrodynamics at large scales. **HW is assigned** **Joost de Graaf**
	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)
2:30-4 PM ***Discussion:*** introduction to soft matter, active matter, modeling of active matter **Giorgio Volpe, Margarida Telo da Gama, Benno Liebchen**	**4-5 PM** **Round Table** Active Matter **Giorgio Volpe, Margarida Telo da Gama, Benno Liebchen**	Students work in groups (HW)	**4:30-5:30 PM** **Round Table** Numerical simulations: importance and applications **J. de Graaf, H. Löwen, B. Liebchen, A. Argun, A. Callegari, C. Dias**	Students work in groups (HW)
	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)

Second Week

Mon, 25 Jan	**Tue, 26 Jan**	**Wed, 27 Jan**	**Thu, 28 Jan**	**Fri, 29 Jan**
Lecture (pre-recorded) C. Dias	**Lecture** (pre-recorded) L. Biancofiore	Students work in groups (HW)	**Lecture** (pre-recorded) M. Ripoll	**Lecture** (pre-recorded) D. Sussman
10:00-11:30 AM **HW Presentation** ***Discussion:*** LAMMPS **HW is assigned** **Cristovao Dias**	**10:00-11:30 AM** **HW Presentation** ***Discussion:*** Computational Fluid dynamics for Active Fluids **HW is assigned** **Luca Biancofiore**	Students work in groups (HW)	**10:00-11:30 AM** **HW Presentation** ***Discussion:*** Multi-particle collision Dynamics **HW is assigned** **Marisol Ripoll**	**10:00-11:30 AM** **HW Presentation** ***Discussion:*** Non-metric interactions in models of active matter **HW is assigned** **Daniel Sussman**
Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)
5-6 PM **Round table** Machine learning for Soft and Active Matter **G. Volpe, F. Cichos, C. Manzo, D. Sussman, A. Argun, S. Helgadottir.**	Students work in groups (HW)	Students work in groups (HW)	**4-5 PM** **Round Table** Advanced simulations **M. Ripoll, D. Sussman, J. de Graaf, L. Biancofiore, N. Araújo, C. Dias**	Students work in groups (HW)
Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)

Third Week

Mon, 1 Feb	Tue, 2 Feb	Wed, 3 Feb	Thu, 4 Feb	Fri, 5 Feb
Lecture (pre-recorded) I. Pagonabarraga	**Lecture** (pre-recorded) M. Ravnik, Žiga Kos	**Lecture** (pre-recorded) A. Doostmohammadi	Students work in groups (HW)	
10:00-11:30 AM **HW Presentation** ***Discussion:*** Lattice Boltzmann for simple fluids **HW is assigned** **Ignacio Pagonabarraga**	**10:00-11:30 AM** **HW Presentation** ***Discussion:*** Lattice Boltzmann for active matter **HW is assigned** **Miha Ravnik, Žiga Kos**	**10:00-11:30 AM** **HW Presentation** ***Discussion:*** Phase-field models for active systems **HW is assigned** **Amin Doostmohammadi**	Students work in groups (HW)	
Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)	
4-5 PM **Round Table** Phase transitions **A. Maciolek,** ***A. Gambassi****	Students work in groups (HW)	**4-5 PM** **Round Table** Future of Active Matter Simulation **I. Pagonabarraga, A. Doostmohammadi, M. Ravnik**	**4 -5 PM** **HW Presentation** **Conclusion**	
Students work in groups (HW)	Students work in groups (HW)	Students work in groups (HW)		

**** to be confirmed***