

Monday, 11th May

08:45-09:15	Registration	
09:15-09:30	Introduction to the course	(Cláudia Nóbrega, Belém Marques, Margarida Correia-Neves, Paula Ludovico – ICVS)
09:30-10:30	Principles of Flow Cytometry: fluidics, optics and detection	(Alexandre Salvador, Enzifarma)
11:00-12:00	Full spectrum flow cytometry: get started	(Mariana Fernandes, GIMM)
13:00-14:00	ICVS student's seminar (TBA)	
14:15-15:15	Fluorochromes – what about them?	(Alexandre Salvador, Enzifarma)
15:15-16:00	Spillover, compensation and unmixing	(Catarina Meireles, I3S)
16:30-17:30	Round table discussion: conventional <i>vs.</i> full spectrum flow cytometry	(Catarina Meireles, I3S; Mariana Fernandes, GIMM)

Tuesday, 12th May

09:00-09:15	Quiz	
09:15-10:00	Principles of planning and executing a flow cytometry experiment	(Mariana Fernandes, GIMM)
10:00-11:00	Conventional cytometry panel design and optimization	(Claudia Nobrega, ICVS)
11:30-12:30	Spectral flow cytometry panel design and optimization	(Laura Ferrer, BD)
12:30-13:30	Running titrations in groups	(Laura Ferrer, BD)
15:00-16:00	Principles of cell sorting	(Catarina Meireles, I3S)
16:00-16:45	Cell sorting tips and tricks, and imaging cell sorting applications	(Mariana Fernandes, GIMM)

Wednesday, 13th May

09:00-09:15	Quiz	
09:15-10:00	Overview in data analysis using FlowJo software	(Claudia Nobrega, ICVS; Diogo Silvério, Enzifarma)
10:00-11:30	Workshop: Panel design	(Laura Ferrer, BD; Claudia Nobrega; Margarida Correia-Neves, ICVS)
11:45-12:45	Instrument set-up, calibration and controls	(Claudia Nobrega, ICVS)
14:00-15:00	G1_Get practical: Cytometer set-up and calibration with beads	
15:15-16:15	G2_Get practical: Cytometer set-up and calibration with beads	
16:30-17:30	G3_Get practical: Cytometer set-up and calibration with beads	(Andreia Mendonça, Enzifarma)
14:00-15:00	G2_Get practical: FACS stain for immunophenotyping	
15:15-16:15	G3_Get practical: FACS stain for immunophenotyping	
16:30-17:30	G1_Get practical: FACS stain for immunophenotyping	(Susana Monteiro, ICVS)
14:00-15:00	G3_Workshop: Antibody titration data analysis	
15:15-16:15	G1_Workshop: Antibody titration data analysis	
16:30-17:30	G2_Workshop: Antibody titration data analysis	(Laura Ferrer, BD; Claudia Nobrega, Margarida Correia-Neves, ICVS)

Thursday, 14th May

09:00-10:15	G1_Get practical: Immunophenotyping data acquisition	
10:30-11:45	G2_Get practical: Immunophenotyping data acquisition	(Andreia Mendonça, Enzifarma)
10:30-11:45	G1_Get practical: Immunophenotyping data analysis	(Claudia Nobrega, ICVS; Diogo Silvério, Enzifarma)
13:00-14:00	ICVS advanced seminar (TBA)	
14:15-15:30	G3_Workshop: Immunophenotyping data acquisition	(Andreia Mendonça, Enzifarma)
14:15-15:30	G2_Workshop: Immunophenotyping data analysis	
15:45-17:00	G3_Workshop: Immunophenotyping data analysis	(Claudia Nobrega, Margarida Correia-Neves, ICVS; Diogo Silvério, Enzifarma)

Friday, 15th May

09:00-09:15	Quiz	
09:15-10:15	Clinical Immunology: Principles and Fundamentals of Euroflow	(Andreia Mendonça, Enzifarma)
10:15-11:15	Flow cytometry applications in the diagnosis and follow-up of hematologic malignancies	(Bruno Fernandes, IPO)
11:45-12:45	Guided by flow: decoding patterns in inborn and acquired immune defects	(Catarina Martins, Nova Medical School)
14:00-15:30	Workshop: Analysis of clinical cases	(Bruno Fernandes, IPO; Catarina Martins, Nova Medical School)

2nd week

Monday, 18th May

09:00-09:45	Functional Cytometry	(Paula Ludovico, ICVS)
09:45-10:30	Flow cytometry analysis of cell death	(Paula Ludovico, ICVS)
11:00-11:45	Flow cytometry analysis of lipids and glucose consumption	(Paula Ludovico, ICVS)
13:00-14:00	ICVS student's seminar (TBA)	
14:15-15:15	G2_Get practical: Functional cytometry, metabolism & cell death	
15:30-16:30	G3_Get practical: Functional cytometry, metabolism & cell death	
16:45-17:45	G1_Get practical: Functional cytometry, metabolism & cell death	(Belém Marques, ICVS)

Tuesday, 19th May

09:00-09:15	Quiz	
09:15-10:30	DNA and cell cycle analysis by flow cytometry	(Carlos Palmeira, IPO)
11:00 -12:30	Get practical: Cell staining for cell cycle analysis	(Belém Marques, ICVS; Carlos Palmeira, IPO)
13:30 -14:15	G1_Get practical: Cell cycle data acquisition	
14:30 -15:15	G2_Get practical: Cell cycle data acquisition	
15:30 -16:15	G3_Get practical: Cell cycle data acquisition	(Claudia Nobrega, ICVS)
14:30 -15:15	G1_Workshop: Cell cycle data analysis	
15:30 -16:15	G2_Workshop: Cell cycle data analysis	
16:30 -17:15	G3_Workshop: Cell cycle data analysis	(Belém Marques, ICVS; Carlos Palmeira, IPO)

Wednesday, 20th May

09:00-09:15	Quiz	
09:15-10:00	Cell Proliferation assays by flow cytometry	(Claudia Nobrega, ICVS)
10:30-12:00	Workshop: FlowFish for the evaluation of DNA repeats (theory + data analysis)	(Claudia Nobrega, ICVS)
13:30-15:00	Workshop: Cytokine multiplex assay (theory + data analysis)	(Alexandra Fraga, ICVS)
15:30-17:00	Detection of extracellular vesicles (EV) by flow cytometry: controls and guidelines	(Belém Marques, ICVS)

Thursday, 21st May

10:30-12:00	G2_Get practical: acquisition and analysis of extravesicular vesicles	(Belém Marques, Claudia Nobrega, ICVS)
13:00-14:00	ICVS advanced seminar (TBA)	
14:15-15:45	G1_Get practical: acquisition and analysis of extravesicular vesicles	
16:00-17:30	G3_Get practical: acquisition and analysis of extravesicular vesicles	(Belém Marques, Claudia Nobrega, ICVS)

Friday, 22nd May

14:00-14:30	Quiz (online)	
14:30-15:30	Flow Cytometry Peer Reviewed: Concepts of data representation for publication	(Rui Gardner, MSKK - webinar)
15:30-16:00	Course evaluation (online)	

3rd week**Monday, 25th May**

Self-study

Tuesday, 26th May

Self-study

Wednesday, 27th May

Self-study

Thursday, 28th May

Self-study

23:00 Deadline for the delivery of the task (MSc students, only)

Friday, 29th May

10:00-12:00	Written exam (PhD Students, only)
13:30-15:00	Discussion of the task assignments (MSc students, only) and exam