The focus in this course is on the emerging area of systems immunology. We will learn how leading-edge approaches in genetics, transcriptomics, epigenomics, proteomics, genetic perturbation screens, T/B repertoires, microbiomes, and tissue architecture can be used to understand immune cell types and states, intracellular and intercellular circuits underlying immunity, and mechanisms of immune diseases. Classes will consist of pre-recorded lectures, live sessions to discuss leading-edge studies, followed by a companion workshop for hands-on computational analysis of data related to key topics.

Note: For Fall 2023, the course will be shortened to only include a few lectures on computational methods and transcriptomics and the hands-on workshops. In 2024, we will return to the full course with lectures on all topics and workshops.

1. This year only, we will meet on 4 dates and cover RNA-seq and single-cell RNA-seq analysis. There will be a final project in which you analyze published datasets.

2. You will need experience in R to take the course this year. If you are a DMS Immunology G1 students, there will be a 4 session R bootcamp prior to the course. Link is here to workshop materials.

Date	**Lecture**	**Instructor**	**Workshop**
Oct 20	Computational approaches to transcriptome data (9-10am) Martin Hemberg	Chris Magnano Eren Ada Tom LaSalle (TF)	10-12 AM bulk RNA-seq analysis
Oct 27		Eren Ada Chris Magnano Tom LaSalle (TF)	9-11 - scRNA-seq analysis I
Nov 3		Eren Ada Chris Magnano Tom LaSalle (TF)	9-11 - scRNA-seq analysis II
Dec 1	Final project presentations (9-11:30am)		