Summary
The theme of the course is the role of inflammation in cancer. It focuses on the regulation and multifaceted functions of tumor-associated inflammatory cells, and how they promote or oppose cancer.

Content
The course will start with a short introduction by the teachers, who illustrate the focus of the course and the learning objectives. In the remaining classes the students will analyze, present and discuss research papers that have been agreed with the teachers.

Part I – Develop an encyclopedia
The students develop an encyclopedia of the various inflammatory cell types and subtypes that have hallmark-promoting or antagonizing capabilities. Macrophages (i), neutrophils (ii), myeloid-derived suppressor cells (MDSCs), T cells (iv) – or subsets thereof – will be defined and discussed with respect to their tumor-promoting or antagonizing functions.

Part II – To kill or reprogram?
For each cell type/subtype, the students describe and discuss known strategies – genetic or pharmacological – to either kill the cell of interest or reprogram its functions in tumors.

Part III – Translation to cancer therapy
For each cell type/subtype, the students design pre-clinical studies that can guide or incentivize clinical studies aimed at ablating or reprogramming the cell of interest in a suitable cancer type.

Keywords
Inflammation; Cancer; Immunity; Macrophage; Myeloid cell; T-cell; Tumor-promoting function; Tumor-antagonizing function; Mouse model of cancer; Cell reprogramming; Pre-clinical trial; Clinical trial.

Learning Prerequisites
Recommended courses
Cancer biology I and II

Learning Outcomes
- Design pre-clinical trials that can guide clinical trials
- Analyze presents and critically discuss the results of scientific papers
- Describe the main characteristics and functions of the different inflammatory (immune) cell types/subtypes that are recruited to tumors
- Discuss the mechanisms whereby the distinct inflammatory (immune) cell types/subtypes regulate multiple hallmarks
of cancer
• Describe strategies (experimental or clinical, genetic or pharmacological) to interfere with the functions of the cells of interest and/or reprogram them from a tumor-promoting to a tumor-antagonizing activity.

Resources

Bibliography
Hanahan and Weinberg, Hallmarks of cancer: The next generation (Cell, 2011)

Ressources en bibliothèque
• Hallmarks of cancer: the next generation / Hanahan