Summary
The course covers in detail molecular mechanisms of cancer development with emphasis on cell cycle control, genome stability, oncogenes and tumor suppressor genes.

Content
The 2x5 credit course starts in the fall semester and continues throughout the spring semester as Cancer Biology II. In the fall semester (Cancer Biology I), the following topics are covered:
- Oncogenes and tumor suppressors
- Cell cycle regulation
- Apoptosis and senescence
- Signalling pathways in cancer
- Genome maintenance and segregation
- DNA repair
- Functional genomic screens and targeted cancer therapies

Learning Prerequisites
Recommended courses
Basic knowledge of molecular biology and genetics.

Learning Outcomes
By the end of the course, the student must be able to:
• Expound mechanisms of cell cycle control
• Expound mechanisms of genome maintenance
• Expound principles of tumor development
• Assess / Evaluate published experimental results
• Design experiments to test hypotheses
• Create models to explain data
• Give an example of a tumour suppressor
• Give an example of an oncogene
• Expound cancer signalling pathways

Transversal skills
• Communicate effectively with professionals from other disciplines.
• Evaluate one’s own performance in the team, receive and respond appropriately to feedback.
• Give feedback (critique) in an appropriate fashion.
• Access and evaluate appropriate sources of information.
• Make an oral presentation.
• Summarize an article or a technical report.
• Continue to work through difficulties or initial failure to find optimal solutions.
• Take feedback (critique) and respond in an appropriate manner.
• Demonstrate the capacity for critical thinking
• Set objectives and design an action plan to reach those objectives.

Teaching methods
Ex cathedra and exercises

Assessment methods
Continuous control

Supervision
Office hours No
Assistants No
Forum No
Others Office hours by appointment only.

Resources
Bibliography

Ressources en bibliothèque
• The Biology of Cancer / Weinberg

Prerequisite for
Master in life sciences & technology, specialization in molecular medicine.