

# Cell Biological Science and Engineering

Special Subjects  
Elective 2 credit

TAKAYAMA, Yuko

## 1. Course Description

The cell cycle and its molecular mechanisms are expounded. Students introduce related original papers in turns in the class.

## 2. Course Objectives

The cell cycle, the ordered set of processes by which one cell grows and divides into two daughter cells. Cell growth and division is a basis of biology. Without knowing the cell cycle control, we cannot understand the uncontrolled cell division of cancers and the growth arrest of the senescent cells. The aim of this lecture is to understand molecular mechanisms of cell cycle control.

## 3. Grading Policy

The learning results are evaluated based on exercises and reports.

## 4. Textbook and Reference

Textbook

The Cell Cycle an introduction

## 5. Requirements(Assignments)

## 6. Note

## 7. Schedule

- [1] Cell growth and the cell cycle
- [2] Chromosomes and inheritance
- [3] Mitosis and meiosis
- [4] The early embryonic cell cycle
- [5] The Control of Mitosis
- [6] The transition from G1 to S phase
- [7] The control of DNA replication
- [8] The cell cycle checkpoint
- [9] The meiotic cell cycle
- [10] Genetic analysis of the cell cycle: exposition of experiment methods
- [11] Genetic analysis of the cell cycle: exposition of experiment methods
- [12] Group reading of an original paper about the cell cycle
- [13] Presentation of an original paper about the cell cycle
- [14] Presentation of an original paper about the cell cycle
- [15] Conclusion and discussion