

Biochemical Engineering

생물화학공학

School of Life Science, Handong Global University

Lecture overview:

Introduction to biochemical applications of bioprocesses, including use of genetically modified cells, cultivation of cells, separation/purification of bioproducts and production of protein pharmaceuticals

Instructor: Prof. Chang-Kee Hyun, Ph.D.

Objectives:

- To understand basic concepts and principles of bioprocesses
- To understand the use of genetically modified cells
- To understand principles of animal cell culture
- To understand the separation and purification of bioproducts
- To understand the production of protein pharmaceuticals

Textbook: Lecture Note edited by Chang-Kee Hyun, 2017

References:

Bioprocess engineering principles, 2nd ed., P.M. Doran, Academic Press, 2012

Culture of animal cells, 6th ed., I.R. Freshney, Wiley-Liss, 2010

Molecular Biology of the Cell, 6th ed., B. Albert et al., Garland Science, 2015

Molecular Biotechnology, Principles and Applications of Recombinant DNA, 5th ed., B.R. Glick & J.J. Pasternak, ASM, 2017

Contents and schedule:

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| 1. Bioprocess development: An interdisciplinary challenge | 1 week |
| 2. Utilizing genetically engineered cells | 2 weeks |
| 3. Animal cell cultures | 6 weeks |
| 4. Cell growth kinetics and large scale production | 2 weeks |
| 5. Separation and purification of bioproducts | 2 weeks |
| 6. Recombinant proteins of high value | 2 weeks |