

Advanced Microbiological Engineering

2 units (selection)

Takeshi Omasa · PROFESSOR / BIOLOGICAL FUNCTIONS, BIOLOGICAL SCIENCE AND TECHNOLOGY, EARTH AND LIFE ENVIRONMENTAL ENGINEERING

Target To learn bio-based production

Outline To understand basic engineering aspects from lab- to industrial-scale productions

Style Lecture

Keyword *biochemical engineering, bio-based production, separation and purification, environmental engineering*

Fundamental Lecture “**Biomolecular Design**”(0.4)

Relational Lecture “**Advanced enzyme engineering**”(0.4)

Requirement Undergraduate biotechnology is required

Goal To understand basic engineering aspects from lab- to industrial-scale productions. 1.bio-based production, 2.separation&purification, 3.environmental technology

Schedule

1. bioresources
2. bioinformatics-basic
3. bioinformatics-advanced
4. high throughput screening -basic
5. high throughput screening -basic
6. metabolic engineering -basic
7. metabolic engineering -advanced
8. kinetics of biocatalyst
9. bioreactor
10. separation of bioproducts
11. purification of bioproducts
12. sensing and control of bioprocess -basic
13. sensing and control of bioprocess -advanced
14. environmental biotechnology -basic
15. environmental biotechnology -advanced
16. term-end examination

Evaluation Criteria Presentation and discussion in each topics (70%), term end exam (30%)

Textbook コロナ社「バイオプロダクション —ものつくりのためのバイオテクノロジー—」化学工学会 バイオ部会編

Reference To be introduced in the class

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216844>

Student Able to be taken by only specified class(es)

Contact

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MAIL (Office Hour: Thu 12:00-13:30)

Note 2hr pre-and post-studies are required. Presentation in each topics is required.