Advanced Materials Design

2 units (selection)

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Target〉 To understand functions and design of various soft materials in relation to the molecular structure and properties.

Outline〉 This class introduces structures, properties, and functions of various soft materials including functional polymers.

Style〉 Lecture

Keyword〉 ***soft matter, functional polymer, properties of polymers***

Goal〉

1. To understand properties and functions of soft materials, especially polymers, in relation to the molecular structure.
2. To understand methods of molecular and material design for obtaining desired function.
3. To research and present topics related to functional polymers.

Schedule〉

1. Introduction to softl materials
2. Structure of polymers 1
3. Structure of polymers 2
4. Properties of polymes 1
5. Properties of polymes 2
6. Functional polymers 1
7. Functional polymers 2
8. Hydrophilic polymers and hydrogels
9. Colloids
10. Amphiphilic molecules
11. Liquid crystals
12. Topics 1
13. Topics 2
14. Topics 3
15. Topics 4
16. Summary

Evaluation Criteria〉 Assignments count 100%.

Textbook〉 荒木孝二他著，有機機能材料，東京化学同人，2006

Reference〉 Ian W. Hamley, Introduction to Soft Matter, John Wiley & Sons, New York, 2000

Contents〉 http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216668

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