

Introduction of Organic Synthesis

Syllabus Number

5D363

Special Subjects

Elective 2 credit

UCHIDA, Kenichi

1. Course Description

This course introduces the students taking this course about foundations of organic synthesis. You can acquire knowledge and ability of DP1 and DP2.

2. Course Objectives

The goals of this course are to be able to understand the methods of organic synthesis and to plan the synthetic route of simple organic compounds.

3. Grading Policy

Your overall grade in the class will be decided based on the following:

- Term-end examination: 70%
- mini-examinations: 30%

4. Textbook and Reference

Textbook

Laurie S. Starkey "Kisokaramanabu Yuukigousei" in Japanese Tokyokagakudoujin (ISBN978-4-8079-0841-7)

5. Requirements(Assignments)

Nothing in particular.

6. Note

7. Schedule

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|------|---|
| [1] | Introduction of organic synthesis (retrosynthetic analysis, synthon, functional group inter conversion) |
| [2] | Acids and bases (pKa, Luise's definition of acids and bases) |
| [3] | Protective groups 1: protection of carbonyl groups and hydroxy groups |
| [4] | Protective groups 2: protection of carboxyl groups and amino groups |
| [5] | Functional group Inter conversion |
| [6] | Redox reactions 1: oxidation reactions |
| [7] | Redox reactions 2: reductive reactions |
| [8] | Synthesis of alcohols and thiols |
| [9] | Synthesis of alkyl halides and aryl halides |
| [10] | Synthesis of ethers |
| [11] | Synthesis of amines |
| [12] | Synthesis of alkanes, alkenes and alkynes |
| [13] | Synthesis of aldehydes and ketones |
| [14] | Synthesis of carboxylic acids and their derivatives |
| [15] | Summary and final examination |