

# Специальные разделы органической химии

**Lecturers:**

Андрей Янкин

**Assistants:**

Венера Гилемханова

**Language:**

English

**Credit points:**

3 э.е.

**Monitoring type:**

Экзамен

**Educational Program:**

Нанопотоника

1, 3 семестры

Гибридные материалы

1 семестр

Квантовые материалы

1, 3 семестры

Компьютерное моделирование квантовых и нанопотонных систем

1, 3 семестры

**Prerequisites:**

Физическая химия

Lectures (a.h)*	Practice (a.h)	Labs (a.h)
18		12
*1 academic hour = 45 minutes		

This course is an intensive, comprehensive introduction to the chemistry of carbon and its importance to biological molecules. Topics include current ideas of bonding and structure, major reaction mechanisms and pathways, a discussion of the analytical tools used to determine the structure and stereochemistry of organic compounds.

## Course content

### Plan of a course

### Структура курса

#### Detailed content of the course:

1. The current state of the theory of chemical structure.
2. Influence of atoms in molecules.
3. Acid-Base properties of organic compounds.
4. Active particles in organic reactions.
5. Mechanisms of organic reactions.
6. Substitution reactions.
7. Addition and elimination reactions.
8. Tautomerism and dual reactivity.
9. Rearrangement reactions.

#### Laboratory Works:

1. Distillation under atmospheric pressure, recrystallization, TLC.
2. Distillation under vacuum, extraction.
3. Synthesis of fluorescent dye.
4. Synthesis of Porphyrin.
5. Synthesis of Pyrrole.
6. Synthesis of polymer nanoparticles.

### Recommended resources

1. M.B. Smith, J. March. March's Advanced Organic Chemistry. Wiley: New Jersey, 2007.
2. E.V. Aslyn, D.A. Dougherty. Modern Physical Organic Chemistry. University science books, 2006.
3. W. C. Groutas. Organic Reaction Mechanisms. Selected Problems and Solutions, 1st Edition. Wiley: New York, 2000.
4. <https://chem.libretexts.org>

### Grading Policy

Final grade is based solely on the final exam. Solution of the homework problems is strongly recommended to be able to solve the problems at the exam.