Course title：Functional Biomolecular Science

Credit: 2

Appropriate grade level and Eligible Departments: 1st-5th grades

Lecturer(s)**:**

Koichi Kato (phone 5225, kkatonmr@ims.ac.jp, Yamate campus building 3, 3F)
Katsuyuki Nishimura (phone 7415, nishimur@ims.ac.jp, Laboratories room 318)
Ryota Iino (phone 5230, iino@ims.ac.jp, Yamate campus building 2, 4F)

Schedule: 1/6,13,20, 2/3,10,17

Place Yamate 4th Bld.3F Meeting Room

Course objectives:
1. Structural analyses of biomolecules by solution and solid-state NMR spectroscopy
2. Single-molecule analysis of biomolecular dynamics
3. Molecular mechanisms of biological functions

Contents:
1. Basic and applications of solution and solid-state NMR spectroscopy in structural analyses of biomolecules
2. Basic of microscopy, Single-molecule imaging, Optical tweezers, Magnetic tweezers, Super resolution microscopy, High-speed atomic force microscopy
3. Functional mechanisms of biomacromolecules including glycoproteins, membrane proteins, and multidomain proteins, Working mechanisms of motor proteins, Molecular basis of protein assembly

Grades: Sufficient attendance to the lecture and a score of some reports