This course offers an introduction to ultracold quantum gases and optomechanics. Following a brief overview of the field, select topics will be covered in a modular fashion. Modules covered in this course include

- Atom cooling and trapping
- Topics in nonequilibrium many-body physics
- Open quantum systems and quantum trajectories
- Optomechanics: Backaction cooling, precision measurements and the standard quantum limit

In addition, I will devote a set of lectures to a discussion of
- Standards of ethics and professional conduct in academia
- Your responsibilities and obligations as a scientist and a student.