

**Course title:** CP Violation

**Instructor(s):** Stephen Lars Olsen

**Class Hours/Credits:** 20 / 1

**Class Format:** lectures and class discussions

**Aims & Objectives:** Understand KM mechanism for quark-sector CP violation, with potential extensions to neutrinos

**Time & Place:** 9:00~11:40 AM in the scheduled days  
RM204, Teaching Building, UCAS Yuquanlu Campus

**Tentative Schedule of the course**

Lectures	subjects	Date in 2018	hours
1	C, P, CP & T discrete symmetries	July 25 (Wed)	3
2	C, P and CP with Dirac fermions	July 27 (Fri)	3
3	C, P & CP violations in K meson system	August 6 (Mon)	3
4	Measurements of $\epsilon'$ for K mesons	August 8 (Wed)	3
5	Kobayashi-Maskawa 6-quark CPV model	August 10 (Fri)	3
6	B mesons & CKM matrix Unitary triangle	August 13 (Mon)	3
7	CPV in the neutrino sector	August 15 (Wed)	2
total			20

**Contents Outline:**

**Section 1:** C, P & CP operators and violations in the weak interactions

**Section 2:** The Kobayashi Maskawa mechanism for CPV in the Standard Model

**Section 3:** CP violations in the neutrino sector and leptogenesis

**Textbook and any related course material:** Bigi & Sanda, CP Violation

**Expected level of proficiency from students entering the course:** General knowledge of particle physics; some familiarity with Dirac equation.