# POSITIVE OPERATORS AND BANACH LATTICES

FALL 2009-2010

INSTRUCTOR: Mert Çağlar

TIMETABLE: Will be announced

CONTACT: (DMCS, İKÜ) A-315, m.caglar@iku.edu.tr, +90 (212) 498 43 58

ASSESSMENT: One mid-term examination, one final examination, and several homework assignments will be given during the semester. The letter grade of the student will be determined upon considering the exams and homeworks along with the student's participation to the course.

PRE-REQUISITIES: Basic knowledge in Functional Analysis and Real Analysis.

PRINCIPAL TEXTBOOK: C.D. Aliprantis & O. Burkinshaw, *Positive Operators*, Springer, The Netherlands, 2006

PROGRAMME

| **WEEKS** | **SUBJECTS TO BE COVERED** |
|---|---|
| 1 & 2 | Basic properties of positive operators; Extensions of positive operators |
| 3 & 4 | Order projections; Order-continuous operators |
| 5 & 6 | Positive linear functionals |
| 7 & 8 | Lattice homomorphisms; Orthomorphisms |
| **Will be announced** | **First Midterm Examination** |
| 9 & 10 | Banach lattices with order-continuous norms |
| 11 & 12 | Weak compactness in Banach lattices; Banach lattices of operators |
| 13 & 14 | Compact operators; Weakly compact operators |
| 15 & after | Dunford-Pettis operators [if time permits] |
| **Will be announced** | **Final Examination** |

SUGGESTED READING:


- Y.A. Abramovich & C.D. Aliprantis, *An Invitation to Operator Theory*, American Mathematical Society, GSM, Vol. 50, Providence, RI, 2002.
- H.H. Schaefer, *Banach Lattices and Positive Operators*, Springer-Verlag, New York, Heidelberg, Berlin, 1974.
- A.C. Zaanen, *Introduction to Operator Theory in Riesz Spaces*, Springer-Verlag, Berlin, Heidelberg, 1997.