

# Elliptic Partial Differential Operators of Second Order

## Oliver Dragičević

### **SYLLABUS:**

This course addresses a fundamental topic that touches the areas of PDEs, functional analysis and harmonic analysis. The purpose of the course is to give an introduction to the theory of elliptic operators on arbitrary domains in euclidean space. The emphasis is on treating divergence-form operators with nonsmooth coefficients. In order to give applications in the above context, we discuss several topics which are also of independent interest: unbounded operators, sesquilinear forms and theory of operator semigroups. The last part of the course is centred around the concept called  $p$ -ellipticity which was introduced in 2016 by A. Carbonaro and the lecturer. Thus the course participant would also get an insight into some of the current topics of research in the area.