Differential elliptic operators are powerful tools for understanding geometrical properties of Kahler and complex manifolds. In joint work with S.-T. Yau, we asked on symplectic manifolds, what elliptic operators are there that are intrinsically symplectic? In this talk, I will introduce a number of new symplectic elliptic operators. Their construction follows simply from a symplectic decomposition of the exterior derivative operator into two linear differential operators, which are analogous to the Dolbeault operators in complex geometry. These elliptic operators exhibit Hodge theoretical properties and encode new symplectic invariants especially for non-Kahler symplectic manifolds.