List of Material for the Quantum Final

(1) The structure of events, states and probability functions of a classical and of a quantum physical system. Hilbert lattices and Gleason's theorem.

(2) Measurement procedures as partitions of unity. Distinguishibility of states and the concept of n-level systems and in particular that of a quantum bit.

(3) Physical quantities as self-adjoint operators, operations between physical quantities and the statistical sum. *Exercises!*

(4) Classical informational capacity of a qbit and in general of a quantum n-level systems. *Those 2 games!*

(5) The EPR paradox and the Bell-inequalities.

(6) Bipartite systems; independence, marginals and entanglement.

(7) Physical operations as completely positive maps. The "no-cloning" theorem.

(8) Dense coding; its relation to entanglement, classical secret sharing, etc.