

Topics in homotopy theory

- (1) Stable homotopy categories. The definition of Spectra and omega spectra. Perhaps the Boardman Category.
- (2) Definition of homology cohomology and homotopy of spaces and spectra defined in terms of a spectrum.
- (3) Examples: MU (complex cobordism) Ordinary homology, Morava K-theory, Wilson Johnson homology theory
- (4) Formal group laws with application of construction of the BP spectrum from MU.
- (5) The Adams Novikov spectral sequence. Application of $K(n)$ (Morava K-theory) to the Adams-Novikov Spectral sequence and the stable homotopy groups of spheres.
- (6) Localization with respect to a homology theory.
- (7) Putting it all together to construct the chromatic spectral sequence with applications computation of the E_2 term of the Adams-Novikov Spectral sequence.
- (8) If time the change of rings theorem and the Morava Stabilizer algebra.