1 overview

Note Title 2/1/2010

I: Homotopy theory

- study spaces "up to homotopy"
- every space is "equivalent to a CW cx"
- when does π_*-iso $\Rightarrow$ htpy equiv?
- when does H_*-iso $\Rightarrow$ htpy equiv?

Fibrations, cofibrations

II: Classifying spaces

- Which functors Top'l spaces $\longrightarrow$ {Sets, Sps}

are representable? i.e. $X \mapsto [X, B]$

- Vector bundles, principle bundles
- Classifying spaces of groups

III: Serre spectral sequence

$F \to E \downarrow B$ fiber bundle: compute $H_* E$ in terms of $H_* B$, $H_* F$

IV: Characteristic Classes

- Chern classes
- Stiefel-Whitney classes

Time permitting: Bonus topics

- Steenrod operations
- Cobordism theory
- K-theory