4/19/16 Lecture 7 outline / summary

- Big picture: $\mathcal{L}_{full} = \mathcal{L}_{known} + \mathcal{L}_{unknown}$. Explain.

- $\mathcal{L}_{mug} \approx \mathcal{L}_{Standard-Model}$. List by spin.

- Spin 2: gravity.

- Spin 1: gauge symmetries, $SU(3)_C \times SU(2)_W \times U(1)_Y \to U(1)_{EM}$.

- Spin 1/2: the quarks and leptons of the SM. Class logo. Three generations.

- Spin 0: Englert-Higgs field.

- Cross sections, in terms of amplitude and kinematic factors.

- Kinematic factors for $2 \to 2$ scattering cross section.

- Crossing symmetry, e.g. $e^- + \mu^- \to e^- + \mu^-$ vs $e^+ e^- \to \mu^+ \mu^-$. We'll do latter case (see also the book). Get started.