UNIVERSITY OF CALIFORNIA, SANTA BARBARA
Department of Physics

Physics 221A **Quantum Field Theory** **Winter 2015**

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ASSIGNMENT #2
Due: Mon., Jan. 26, in class.

Simple 'verify' type problems:
1. Srednicki 38.2
2. Srednicki 38.4

3. A challenge: Read ch. 23, discrete symmetries: P, T, C, and Z in scalar theory. Then,
  a) Find a Lorentz-invariant scalar Lagrangian not invariant under P.
  b) Find a Lorentz-invariant scalar Lagrangian not invariant under T.
  c) Find a Lorentz-invariant scalar Lagrangian not invariant under C.
  These are a bit tricky (Z would be easy). Some require adding nonrenormalizable terms, with a lot of derivatives and different fields!

I would suggest that you also try 39.4, Spin-statistics, before next Weds. (1/28) lecture.