PHY 959 (Sec. 302):
Phenomenology of Standard Model

Time & Place:

Fall 2026, 3:00 pm – 4:50 pm, Tuesday and Thursday
October 19 - December 13, 2026
Room 3239 in BPS Bldg.

Instructor:

Name & Title:	C.–P. Yuan, Professor
Office:	3213 Biomedical & Physical Sciences Bldg. Department of Physics and Astronomy
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Office Hours:	4:10 pm – 6:00 pm, Friday (Or you can just drop by my office at any time.)

Textbook:

Recommended (not required):

J. Campbell, J. Huston, and F. Krauss, *The Black Book of Quantum Chromodynamicss*

R.K. Ellis, W.J. Stirling, B.R. Webber, *QCD and Collider Physics*

Particle Data Group, *The Review of Particle Physics*
http://pdg.lbl.gov/

Topics to be covered:

Standard Model of Elementary Particle Physics
Regularization, Renormalization, and Running Couplings
QCD and Parton Distribution Functions (PDFs)
Leading Order calculations (with MadEvent, etc.)
Next-to-leading order calculations (with MCFM, etc.)
All order calculations (with PYTHIA, HERWIG, Sherpa, ResBos, etc.)
Experimental Detectors
Event signals and backgrounds
Discovery of W and Z bosons
Discovery of Top quark
Discovery of Higgs boson
Neutrinos

Grading: Reports on team projects (100%)