Some possible term paper topics for ATMS 545

planetary atmospheres (Mars, Venus, Jupiter)
atmospheres of idealized planets (aqua-planet....)
methodology for general circulation studies (KE cycle, EP fluxes, coordinate systems, various methods of partitioning, spectral formulations...)
diurnal variations, tides
medium and extended-range forecasting
Fourier space/time decomposition of general circulation statistics
role of mountains in the general circulation
role of the cryosphere in the general circulation
role of clouds in the general circulation (deep convection, stratus decks....)
role of land surface processes in the general circulation
role of moist processes in the general circulation
general circulation during the ice ages or other paleoclimatic regimes
balance requirements for the polar regions
meridional heat transport in the oceans
estimates of the global energy balance based on different analysis approaches
atmospheric angular momentum and length of day
short-term variations in atmospheric angular momentum
the kinetic energy cycle in the oceans
potential vorticity transport
meridional and vertical transport of stratospheric tracers (ozone, volcanic dust, radioactivity)
the hydrologic cycle in the context of the general circulation
southern hemisphere general circulation
asymmetries between the northern and southern hemisphere general circulation
unresolved issues concerning the annual cycle (equatorial cold tongues, semiannual cycle in southern hemisphere sea-level pressure and tropical stratospheric winds, sudden monsoon onset, midwinter minimum in baroclinic wave activity in the Pacific stormtrack)
intertropical convergence zones
monsoons
deserts
stationary waves (need to consider some specific aspect)
equatorial stratospheric quasi-biennial oscillation
polar stratospheric sudden warmings
tropical waves
tropical cyclones
extratropical cyclones
the storm tracks
relation between stormtracks and the background flow
blocking
Madden-Julian Oscillation
drought
structure and evolution of low-frequency variability
interannual climate variability
El Niño / Southern Oscillation
atmospheric response to tropical heat sources
atmospheric response to tropical sea-surface temperature perturbations
extratropical atmosphere-ocean interaction
performance of atmospheric general circulation models
effect of model resolution on the strength of the westerlies
'climate drift' in numerical weather prediction models
coupled atmosphere-ocean GCMs