	Wednesday August 24		Thursday August 25		Friday August 26	
	The Theory of White Dwarf Stars		**The Theory of Neutron Stars**		**The Theory of Black Holes**	
	Topics	**Instructor(s)**	**Topics**	**Instructor(s)**	**Topics**	**Instructor(s)**
9 AM - Noon (Coffee break 10:20-10:40 AM)	1) Basic facts about white dwarfs; 2) Spectral types and spectral evolution; 3) Census and other properties; 4) The potential of white dwarfs as cosmochronometers; 5) Cooling models; 6) Pulsating white dwarfs and asteroseismology; 7) The connection between planets and white dwarfs.	Gilles Fontaine (UdeM)	1) Neutron star structure: core, inner crust, crust; 2) Equation of state of dense matter; 3) Neutron star atmospheres; 4) Superfluidity and superconductivity in neutron stars; 5) Neutron star magnetosphere; 6) Magnetic field evolution.	Andrew Cumming (McGill University)	1) Overview of general relativity and mathematical methods; 2) The Einstein field equations; 3) The Schwarzschild spacetime, the structure of a black hole and what you'd see falling in; 4) Rotating black holes and the Kerr spacetime; 5) Accretion onto black holes: The ideal case, types of accretion flow, real life complications; 6) The formation of jets; 7) Observing accretion discs in strong gravity.	Dan Wilkins (Saint Mary's University)
Noon - 2 PM	**Lunch**		**Lunch**		**Lunch**	
	Observations of White Dwarf Stars		**Observations of Neutron Stars**		**Observations of Black Holes**	
	Topics	**Instructor(s)**	**Topics**	**Instructor(s)**	**Topics**	**Instructor(s)**
2 - 5 PM (Coffee break 3:20 - 3:40 PM)	1) Color-color and color-magnitude diagrams; 2) Atmospheric parameter determinations from spectroscopy, photometry, and gravitational redshifts; 3) Mass distributions and luminosity functions; 4) High speed photometric observations; 5) Spectropolarimetric observations; 6) Spectral evolution.	Patrick Dufour & Pierre Bergeron (UdeM)	1) Radio pulsar basics; 2) Pulsar timing including glitches and binaries; 3) Experimental determinations of neutron star mass and implications for the equation of state; 4) X-ray emission from isolated neutron stars: cooling, light curves; 5) Binary neutron star merger rates & LIGO; 6) Prospects for constraints on EOS from LIGO; 7) Radius constraints from qLMXBs; 8) Magnetars.	Vicky Kaspi (McGill University)	1) Stellar mass black holes: population of black-hole (BH) binaries including BH-BH system(s) as seen with LIGO, low mass and high mass X-ray binaries, mass and spin measurements, accretion modes ; 2) Intermediate mass black holes: formation mechanisms, observational evidence including ultra-luminous X-ray sources; 3) Supermassive black holes: anatomy of an AGN, AGN zoology, SgrA*, event horizon telescope (M87/SgrA*), quasar mode and radio mode feedback, the importance of AGN feedback in galaxies and clusters of galaxies; 4) The physics of compact objects: linking small black holes to big black holes.	Julie Hlavacek-Larrondo (UdeM)