



## **LIFELONG LEARNING MISSISSAUGA**

### **The Universe: Yours to Discover**

**Thursdays, October 16 to December 11 (no lecture November 27), 10:00 am to 12:00 noon**  
**Burnhamthorpe Community Centre, 1500 Gulleden Drive, Mississauga, ON, L4X 2T7**

Come explore the universe, with its grand scales of distance, size, and time. In eight illustrated, non-technical presentations, we will consider astronomy's impact on life and culture over the millennia; journey to the strange worlds of the solar system; witness the birth, life, and bizarre death of stars; marvel at galaxies with their mysterious “dark matter” and “supermassive black holes”; ponder the origin and fate of the universe; and question whether life exists elsewhere in the universe and, if so, what form it might take.

Lots of time for questions and discussion! No science or math background assumed!

#### **Oct 16: “Astronomy: What We Know, and How We Know”.**

The big picture; the grand scales of distance, size, and time; how astronomy is done; Canada's contributions.

#### **Oct 23: “Astronomy through the Ages”.**

Throughout recorded history – and before --, astronomy has been deeply rooted in almost every culture, as a result of its practical applications, and philosophical implications. Explore the many practical applications of astronomy in your life.

#### **Oct 30: “Exploring the Solar System”.**

Spacecraft have now visited every planet, as well as dozens of their moons, and several asteroids and comets. Learn about these strange and diverse “worlds”, and what they can tell us about the past and future of Earth.

#### **Nov 6: “Exoplanets: Planets Around Other Stars”.**

One of the most exciting and important advances in science, in our generation, has been the discovery and study of thousands of planets around other stars. Their diversity is amazing – from “hot Jupiters” to “super-Earths”.

**Nov 13: “The Births, Lives, and Bizarre Deaths of Stars”.** Where did the sun and stars come from? How can they live for billions of years? How and why do they die, forming such bizarre corpses as “white dwarfs”, “neutron stars”, and “black holes”?

#### **Nov 20: “Galaxies”.**

We live in the Milky Way, a galaxy of 300 billion stars, plus gas and dust which forms new stars and planets. Yet 90% of our galaxy is ghostly “dark matter” whose nature we do not understand. And the centre of our galaxy harbours a supermassive black hole, millions of times more massive than the sun. How did it form?

#### **Dec 4: “Cosmology:**

The Origin, Evolution, and Fate of the Universe”. The whole universe of billions of galaxies is expanding from its birth in the Big Bang, 13.8 billion years ago. How was it born, and how do we know? What is the strange “dark energy” which is speeding up the expansion of the universe? What is the universe's eventual fate?

#### **Dec 11: “Life in the Universe”.**

Are we alone in the universe? If not, are our “cosmic cousins” primitive, or like us, or more advanced? How can we tell? What is life, anyway? How did it arise on Earth? Is it the same everywhere in the universe? How can we answer these profound questions?

**Course Director: Dr. John Percy, University of Toronto**

**Registration Fee: \$40.00 per person/per series**

**For information or to register, go to [www.lifelong-learning-mississauga.com](http://www.lifelong-learning-mississauga.com) or phone 647-300-4878**