

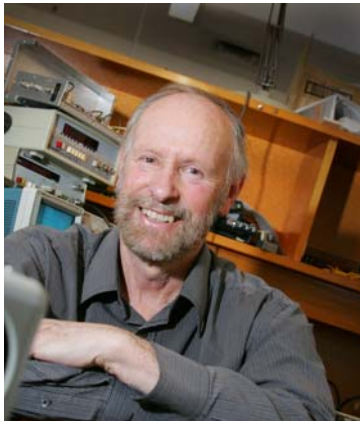
## **ASTR/PHYS 109 2008 The Cosmos: Birth and Evolution**

### **Course information**

#### **Lecturers:**



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#### **Course supervisor**

#### **Course Outline:**

ASTR/PHYS 109 will take you on a grand tour of the universe! We will survey a range of topics in Astronomy, Physics and Cosmology beginning with the denizens of our solar system and expanding outward to visit exotic stars and distant galaxies. During the journey we will learn about how the universe works and we will highlight the key discoveries that have led us to this understanding.

*Our Solar System:* The appearance of the heavens. How the ancients explained the sky. Portents of doom. Ancient to modern ideas of the solar system. Spacecraft exploration of the solar system. How the solar system was formed. Evidence for other planetary systems.

*Other Stars:* The Sun as a star. How stars shine. How stars are born and their life cycles. How hot are the stars? How far away are the stars? The fate of stars: supernovae, white dwarfs, neutron stars and black holes. Re-birth: seeding the next generation of stars.

*Onward and Outward:* Our Milky Way Galaxy. Galaxies: how far away are they? Large scale structure of the universe. Remnant radiation in the universe. Cosmology: the early universe. Big bang models. The future of the universe. Life in the universe. Search for extra terrestrial intelligence (SETI) programmes.

## **Lecture Times:**

Lectures: Wed., Thu., 12:00 – 12:50 p.m., room S3.

Tutorial: Fri. 12:00 – 12:50 p.m., room S4.

Laboratories: There are no laboratories.

## **Assessment:**

Homework problems (10 homework sets at 2% each): 20 %

Assignment (1 assignment worth 5%): 5 %

Quizzes (best 5 out of 6 quizzes at 5% each): 25 %

Final examination: 50 %

## **Online Material:**

Some of the material from class for Dr. Hamilton's section of the course (web tools, homework question sheets and answers) will be available on his website at <http://www.astro.umd.edu/~hamilton/ASTR109>

## **Recommended reading:**

There are no required textbooks for this course, although we have nominated the book below as recommended reading. This book covers the material that is presented in ASTR/PHYS 109 at about the appropriate level and it will be on 1-day loan in the Physical Sciences Library. As this book will be a useful reference and is an attractive book, you may be interested in purchasing it. We believe the more Editions 3, 4, 5 should be available in the University Bookshop.

- The Essential Cosmic Perspective, 3rd-5th edition, (2005), J.Bennett, M.Donahue, N.Schneider & M.Voit, QB43.2 .C834 (Addison-Wesley)

## **Textbooks in the Physical Sciences Library:**

*There are numerous introductory astronomy textbooks in the Physical Sciences library, although some contain a little too much mathematical detail for our Astr109/Phys109 course. Here are some suggestions of places to start your reading, but we urge you to have a browse along the shelves too!*

- The Cosmos: Astronomy in the New Millennium, 1<sup>st</sup> ed., (2001), J.Pasachoff & A.Filippenko, QB43.2 .P (Harcourt)
- *Astronomy: the evolving universe, 9<sup>th</sup> ed, (2002) M. Zeilik, QB45 .Z46 a*
- *Astronomy: a beginners guide to the universe, 3<sup>rd</sup> ed, (2001) E.Chaisson, S.McMillan, QB 43.2 .C435*
- *Astronomy: journey to the cosmic frontier, 2<sup>nd</sup> ed, J.D.Fix, (2001) QB 43.2 .F566*
- *Voyages through the universe, 2<sup>nd</sup> ed, (2001 + update) A.Fraknoi, D.Morrison & S.Wolff, QB 45.F812*
- *Discovering the universe, 5<sup>th</sup> ed, (2000) N.F.Commins, W.J.Kaufmann, QB 43.2 .K21 d*
- The Cosmic Perspective, 2<sup>nd</sup> – 5<sup>th</sup> ed., (2002-2006), J.Bennett, M.Donahue, N.Schneider & M.Voit, QB43.2 .C834 2002 (Addison-Wesley)