



This course explores cosmology: the study of the nature, origin and fate of our universe. This course is free and open to anyone. If you have done Maths and Physics at school you should be able to get the most out of the course, but even if you don't know Maths and Physics at all, there should still be a lot here for you.



Brian Schmidt is an astrophysicist at the Australian National University. He led the team that discovered dark energy – work which won him the 2011 Nobel Prize for Physics. He is now Vice Chancellor (President) of the Australian National University



Paul Francis is an astrophysicist at the Australian National University. He has won many prizes for teaching and science communication, and does research on comets, quasars and high redshift galaxies.

This is a self-paced course: there are no deadlines and you can take as long as you like to complete it. It should take a total time of around 30 hours to finish.

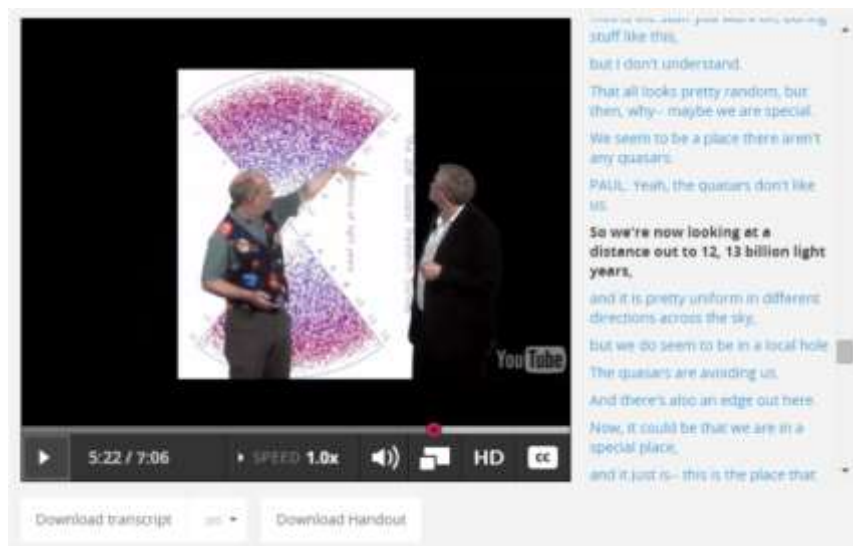
Videos

Play around with the buttons below the video to change the speed, display captions, change the resolution or view full screen (depending on the speed of your internet connection).

A link below each video allows you to download it. Feel free to share the videos with friends or show them in class. All our content is available for use under a Creative Commons Attribution-ShareAlike License.



The questions between the videos are worth 10% of the course mark. You have as many chances as you like to answer each question correctly.



Mystery

In this course, we aim to give you the chance to experience what it is like to be a research astrophysicist.

To do this, we have invented a mystery for you to solve. We have made up a universe that is very different from ours - one with only a single star in the sky, and a great red fuzzy ball.

This universe is different from ours, but the methods you will need to employ to solve it are just the same as those we explain in the videos: the methods astrophysicists use to understand our own universe.

Each week we will present new clues for you to think about, and maybe discuss on the discussion page.

The final examination will test how much you have figured out!

Assessment

If you intend to get a certificate from this course, you will need to verify your identity, do the assessment, and get a grade of at least 70%.

Marks Breakdown:

Lesson Questions: 10%. These conceptual multiple choice questions can be challenging, but you can have as many tries as you wish to answer them, and after your first attempt a button will appear which allows you to see the answer.

Homework: 50%. These are harder, more mathematical questions. There is a homework assignment in each section, and you have two weeks from when the section becomes visible to do them. You get five chances to solve each of the mathematical questions.

In preparation for attempting the homework, there are optional worked examples and practice questions in each section. These are not worth marks - they are there to give you a chance to practice your skills before doing the homework.

Final Examination: 40%. This examination will test how much you have deduced about the mystery (the simulated universe).

Discussion Board

This is where you discuss what you're learning, contact other students, ask questions, answer them, get help with the homework, and propose observations to solve the course mystery. There is a discussion page below every video and question where you can ask and answer questions specific to that topic. And in addition you can access all discussions from the discussion tab (as shown above).

There are a few rules for the course:

- 1) You must abide by the edX terms of service and honour code, which can be found at <https://www.edx.org/edx-terms-service>. This honour code, amongst other things, bans the following from being posted on the site:
 - Content that defames, harasses or threatens others;
 - Content that discusses illegal activities with the intent to commit them;
 - Content that infringes another's intellectual property, including, but not limited to, copyrights or trademarks;
 - Profane, pornographic, obscene, indecent or unlawful content;
 - Advertising or any form of commercial solicitation;
 - Content related to partisan political activities;
 - Viruses, trojan horses, worms, time bombs, corrupted files, malware, spyware or any other similar software that may damage the operation of another's computer or property;
 - Content that contains intentionally inaccurate information or that is posted with the intent of misleading others.
- 2) Answers to homework questions should not be posted on the discussion board. You can post hints (e.g. "use the inverse square law") but not the actual answers (e.g. "the answer to question 5 is 4.342").
- 3) If you are aiming to earn a certificate, you must do the lessons, homework questions and exam yourself.