

## Statement of participation

**Muhammad Farid Wajdi Makkulau**

has completed the free course including any mandatory tests for:

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### The formation of exoplanets

This free 6-hour course explored scientific efforts to reconcile the observed exoplanet population with current theories on how planets form.

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**[www.open.edu/openlearn](https://www.open.edu/openlearn)**

This statement does not imply the award of credit points nor the conferment of a University Qualification.  
This statement confirms that this free course and all mandatory tests were passed by the learner.

Please go to the course on OpenLearn for full details:

**<https://www.open.edu/openlearn/science-maths-technology/the-formation-exoplanets/content-section-0>**

COURSE CODE: **S384\_1**

# The formation of exoplanets

<https://www.open.edu/openlearn/science-maths-technology/the-formation-exoplanets/content-section-0>

## Course summary

Over the last few decades astronomers have discovered thousands of planets orbiting stars other than the Sun – known as exoplanets. Many of these exoplanets are quite unlike anything we see in our Solar System. These include ‘hot Jupiters’ orbiting very close to their parent star and rocky ‘super Earths’ many times larger than our home planet. In this free course, The formation of exoplanets, you will learn about the challenges connected with efforts to reconcile the observed exoplanet population with current theories on how planets form. The two main theories for this, namely the core-accretion scenario and the disc-instability scenario, will be explored mathematically.

## Learning outcomes

By completing this course, the learner should be able to:

- use mathematical models to calculate properties of protoplanetary discs
- understand the core-accretion scenario for the growth of planetary cores from smaller components
- understand the disc-instability scenario for the formation of planets from a circumstellar disc
- describe how planets migrate and interact after forming
- appreciate how planet formation models can explain the observed exoplanet population.

## Completed study

The learner has completed the following:

### Section 1

Protoplanetary discs

### Section 2

Rising from the dust

### Section 3

The final stages of planet formation

### Section 4

Quiz

### Section 5

Conclusion