

Nottingham Trent University

Course Specification

GLOBAL SUMMER SCHOOL

	Basic Course information	
1	Course Title:	Astronomy, Rocketry, and Space Science.
2	Course Code:	GLB_001
3	Credit Points:	10
4	Duration:	10 days
5	School:	Science and Technology
6	Campus:	City (and Clifton)
7	Date this version first approved to run:	

8 Pre, post and co-requisites:

You should have the required English language skills.

9 Programmes containing the Course

<u>Level</u>	<u>Core/Option</u>	<u>Mode</u>	<u>Code</u>	<u>Course Title</u>
5	Option	FT		A constituent of the NTU Global Summer School.

10 Overview and Aims

This course will provide you with knowledge and skills to understand why space agencies and private industries want to explore space. You will learn to use the open source software ImageJ to pick out information about space images, communicate your knowledge, and link multiple academic disciplines to space science. Your practical skills will be developed, and you will have the opportunity to do some observing (either of the sun or stars weather dependent).

At the end of the course you will be able to describe what is in the nights sky, what people believed about it in the past, and what direction private space industry is going in.

11 Course Content

The course will introduce you to a range of topics within space science, with both traditional and modern approaches. There will be a focus on the range of different science backgrounds and opinions.

- How different cultures saw the nights sky including constellations and myths
- Advances in observing the nights sky by changes in telescope design
- What different types of stars and galaxies are there?
- What is our solar system like
- What do we do with images from space
- How to be a rocket scientist
- Space agencies around the world
- Exoplanets, exobiology, exochemistry, and exomedicine
- Space tourism and private space travel

Activities within the course can include observations using binoculars, telescopes, solarscopes and infra-red cameras, image analysis, making creative pieces linked to space, public science writing, and debating topics.

We will aim to have day trips to relevant local sites (which could include the National Space Centre in Leicester, the Planetarium at Sherwood observatory, and Woolsthorpe Manor where the apple fell on Newton's head).

The assessment will be a portfolio of your pieces throughout the course, including a public science article, a reflection of your daily experiences in the course, and an academic poster of a past or future space mission.

You do not need any previous knowledge in physics, mathematics, or programming, and the aspects of the course will mostly be qualitative.

12 Indicative Reading

13 Learning outcomes

Knowledge and understanding. After studying this course, you should be able to:

- K1. Understand some aspects of the history of space
- K2. Know how a rocket works and what the important considerations are for a space mission.
- K3. Have an opinion on private space travel

Skills, qualities, and attributes. After studying this course, you should be able to:

- S1. Perform basic analysis of space data and images
- S2. Deliver space science information for a range of audiences and in multiple media

14 Teaching and learning

Range of modes of direct contact

Total contact hours: 50

Reasonable additional hours will be required for reading and research before and during the course.

Range of other learning methods

Total non-contact hours: 10

15 Assessment methods

This indicates the type of assessment elements in the course

<u>Element number</u>	<u>Weighting</u>	<u>Type</u>	<u>Description</u>
1	100%	Portfolio	A combination of an artistic piece, a public science article, a reflection of your daily experiences in the course, and an academic poster of a past or future space mission.

Further information on assessment

There will be time during the course for informal feedback sessions with your tutor.

Final Assessment: You will receive a pass/fail mark for the course. Written feedback from your tutor will identify strengths evident in the body of work and include some pointers on what to focus on to improve your future work.