

**AIR FORCE JUNIOR ROTC (GA-20102)  
AEROSPACE SCIENCE  
AY 2015-2016**

**AFJROTC - "DOING GREAT THINGS"**

**COURSE NAME:** Aerospace Science

**INSTRUCTORS:**

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**REQUIRED TEXT AND MATERIALS:**

*Aerospace Science: "Exploring Space The High Frontier"*

*Lesson Study Guides (SG): Cadets will receive either a "0" or "100" grade for timely SG completion.*

**COURSE DESCRIPTIONS:** The Aerospace Science course on "Exploring Space" is a science course that includes the latest information available in space science and space exploration. The course begins with the study of the space environment from the earliest days of interest in astronomy and early ideas of the heavens, through the Renaissance, and on into modern astronomy. It provides an in-depth study of the Earth, Sun, stars, Moon, and solar system, including the terrestrial and the outer planets. It discusses issues critical to travel in the upper atmosphere such as orbits and trajectories unmanned satellites, and space probes. It investigates the importance of entering space and discusses manned and unmanned space flights, focusing on concepts surrounding spaceflight, space vehicles, launch systems, and space missions. The section on manned spaceflight focuses on the Space Shuttle, space stations and beyond, covering milestones in the endeavor to land on the Moon and to safely orbit humans and crafts for temporary and prolonged periods. The course covers the human aspect of spaceflight, focusing on the human experience in space. It also examines the latest advances in space technology, including robotics in space, the Mars Rover, and commercial uses of space. The course objectives for **First, Second, and Third Year Cadets are:**

1. Know the history of astronomy and the specific characteristics of the Earth, Moon, solar system, and the planets.
2. Comprehend the big picture of space exploration, including the history of spaceflight, organizations doing work in space, and the overall space environment.
3. Comprehend the importance of entering space, characteristics of manned and unmanned spaceflight, and how humans are affected during spaceflight.
4. Comprehend the key concepts for getting from the surface of the Earth into Earth orbit and to other planets and back again.
5. Comprehend how spacecraft, rockets, and launch vehicles are designed and built.
6. Comprehend the latest advances in space technology.

<b>Class Date</b>	<b>Lesson and/or Fitness Event</b>
31 August – 10 September 2015	Unit 1 The Space Environment Chapter 1 – The History of Astronomy Lesson 1 – Prehistoric and Classical Astronomy (p.6)
14 September – 1 October 2015	Unit 1 The Space Environment Chapter 1 – The History of Astronomy Lesson 2 – Astronomy and the Renaissance (p.20)
5 - 15 October 2015 ( <b>End of Grading Period 9 Oct 2015</b> )	Unit 1 The Space Environment Chapter 2 – The Earth and The Moon Lesson 1 – Earth Inside and Out (p.50)

19 – 29 October 2015	Unit 1 The Space Environment Chapter 2 – The Earth and The Moon Lesson 2 – The Moon; Earth’s Fellow Traveler (p.62)
2 – 19 November 2015	Unit 1 The Space Environment Chapter 3 – The Sun and the Solar System Lesson 1 – The Sun and its Domain (p.76)
<b>11 – 13 November</b>	<b>CIA Trip Space Camp</b>
5 – 14 January 2015	Unit 1 The Space Environment Chapter 3 – The Sun and the Solar System Lesson 2 - The Terrestrial Planets (p.94)
19 – 28 January 2016	Unit 2 Exploring Space Chapter 5 – Exploring, Living, and Working In Space Lesson 1 – Why Explore Space (p.182)
1 - 11 February 2016	Unit 2 Exploring Space Chapter 5 – Exploring, Living, and Working In Space Lesson 2 – Assembling a Space Mission (p.198)
22 February – 3 March 2016	Unit 3 Manned and Unmanned Spaceflight Chapter 6 – Space Program Lesson 1 – The U.S. Manned Space Program (p.250)
7 – 24 March 2016 (11 March End of Grading Period)	Unit 3 Manned and Unmanned Spaceflight Chapter 7 – The Space Shuttle Lesson 1 – The Shuttle Program (p.302)
<b>23 – 25 March 2016</b>	<b>CIA Trip – EPCOT/Disney World</b>
28 March – 21 April 2016	Unit 3 Manned and Unmanned Spaceflight Chapter 7 – The Space Shuttle Lesson 2 – Lessons Learned; Challenger and Columbia (p.320)
25 April – 12 May 2016	Unit 4 Space Technology Chapter 11 – Rockets and Launch Vehicles Lesson 1 – It Is Rocket Science; How Rockets Work p. (442)
<b>16 – 26 May 2016 (End of Grading Period)</b>	<b>Final Exam Review</b>

**Class Rules of Engagement (ROE):** We will begin each lesson with the corresponding study guide which is to be completed in class on the first day of the lesson or at home and turned in NLT the beginning of the second day of the lesson. We will review the study guide in class prior to the lesson being taught to ensure cadets have read the lesson and to foster greater cadet and instructor interaction. Following completion of presentation of the lesson, we will review the material using various fun and challenging competitive strategies/games (i.e. Jeopardy, 4-Corners, etc.) in order to make the review more exciting and meaningful. The lesson exam will be given the first day after completion of the lesson review.