

16.00x Spring 2015 Syllabus & Calendar

Welcome to 16.00x Introduction to Aerospace Engineering: Astronautics and Human Spaceflight. Please use this document as a reference guide for the course.

Course Expectations

Our primary goal for 16.00x is that students will have fun while learning about aerospace engineering. Because this is an introductory course, the **estimated effort** is 3-6 hours per week. This means that on average, we expect a student to spend 3-6 hours each week in order to go through all the content: watch the lecture videos, learn the material, complete the embedded problems, and participate in discussion forums. However, please note that the estimated time can vary from person to person, and from week to week.

Course Components

- **Videos:** Videos are the primary mode of content delivery in 16.00x. For each unit, there will be a set of approximately 10 videos which serve as the lectures for that unit. The videos will provide background and context, explain key concepts, introduce homework problems, or share personal experiences. They are typically around ten minutes in length, although some may be longer or shorter. Each video has a corresponding transcript which you can use to follow along with the content. You can stream the videos online, or download the video file and/or transcript to watch offline at your convenience.
- **Embedded Questions (EQ):** Interspersed between the videos are embedded questions designed to let you apply what you've been learning and try out the concepts yourself. To keep you on track, there are due dates associated with the embedded questions in each unit. Pay close attention to the questions and the deadlines, as they are an important graded part of the course.
- **Discussion Forums:** Discussions are another important element of the course. We encourage you to actively participate in the discussion forums --- articulating your thoughts and getting to know your peers is a valuable

learning experience in itself. Be sure to tag your posts according to the rules listed in the Discussion Forum Guidelines so that they are easy to find.

- **Interactive Simulations:** Where appropriate, interactive simulations are embedded in the course to illustrate a specific topic or idea. While they are not graded, we highly recommend that you try out the simulations to reinforce the concepts introduced in the videos.
- **Additional Resources:** For some topics, we will provide readings and links to optional resources that may be used to further explore the material. We encourage you to use these resources to deepen your understanding and broaden your perspective beyond what is covered in 16.00x.
- **Aircraft Accident Report:** In Unit 5 on System Safety, you will be asked to write a research paper discussing a specific aircraft accident. The paper should be approximately 1500 words (roughly 5 pages double-spaced), and you will be given 2 weeks to complete it. It will account for a significant portion of your final grade in 16.00x so we suggest that you start the assignment early.

Measurable Outcomes

Each unit of 16.00x contains a set of outcomes that a student should be able to demonstrate upon successful completion of that unit. The outcomes are stated in a manner such that they can (hopefully) be measured, and the entire course is designed to help you achieve the measurable outcomes (MO's).

Most subsections will be tagged with one or more measurable outcomes via buttons at the top of the page. Holding your cursor over an MO button will reveal the text of the measurable outcome, and clicking on the button will take you to the MO Index for the course, which allows you to browse through all the outcomes covered in the course thus far, and easily access the subsections in which a particular outcome is addressed or assessed. As you consider your progress throughout 16.00x, you should always review these measurable outcomes and ask yourself: *Can I demonstrate each measurable outcome?*

Assignments and Grading

Release dates and deadlines will occur at **14:00 UTC** on either a Tuesday or a Friday. That means the content of a new unit will be released at that time, and the embedded questions from the previous unit will also be due. In the table of contents on the left side of the page (the "courseware accordion"), a blue clock next to a section indicates that there are embedded questions in that section.

Your grade in 16.00x will be determined by your responses to the embedded questions in the online content as well as the aircraft accident paper (both writing the paper as well as reviewing papers written by several of your peers). The weight given to each unit and assignment is listed below. To successfully pass 16.00x, you must achieve a grade of at least **75%**.

Unit	Name	Release Date 14:00 UTC	Assignment	Due Date 14:00 UTC	Grading Weight
1	Introduction to 16.00x	Tues, March 3	Entrance Survey	-	-
2	Rocket Science	Tues, March 10	Embedded Questions	Fri, March 20	25%
3	Environmental Control and Life Support Systems	Fri, March 20	Embedded Questions	Fri, March 27	10%
4	Orbital Mechanics	Fri, March 27	Embedded Questions	Tues, April 7	25%
5	System Safety	Tues, April 7	Aircraft Accident Report	Tues, April 21	30%
6	Microgravity and Space Physiology	Tues, April 14	N/A	-	-
7	Extravehicular Activity	Tues, April 21	Embedded Questions	Tues, April 28	10%
			Peer Review of Aircraft Accident Report	Tues, April 28	-
-	Course Wrap-Up	Tues, April 28	Exit Survey	Tues, May 5	-