HISTORY OF SCIENCE I (08)

DATE	NOTES	HISTORICAL CONTEXTS
DAY 1 Jan. 9	Course Introduction. For a detailed description of the course refer to Course Outline. Sign up for Historical Contexts for DAY 2 and DAY 3. <u>One education student should pair with a physics student</u>	Aristotle's physics of motion: A sample context, presented by instructor.
DAY 2 Jan. 16	**I. GREEK SCIENCE** Part A: THE WORLD IS RATIONAL AND CAN BE UNDERSTOOD BY THE POWER OF REASONING" Part B: THE TWO GREATEST SCIENTISTS OF THE ANCIENT WORLD: ARISTOTLE AND ARCHIMEDES. Sign up for Historical Contexts for DAY 4 & 5. Reading assignment 1: "The Scientific Revolution" (See Course Outline).	1. The beginnings of geometry. 2. Pythagoras and he mathematization of the world. 3. The three laws of physics that the Greeks discovered. 4. The three unsolved problems in Greek mathematics.
DAY 3 Jan. 23	**I. GREEK SCIENCE** MODELLING AND MEASURING THE UNIVERSE Reading assignment 4: "Lavoisier and the Theory of Combustion" and "The Invention of the Balloon and the Birth of Modern Chemistry". (See Course Outline) Sign up for Historical Contexts for Day 7 and 8.	5. "Measuring" the size of the earth. 6. How the Greeks measured the distances to the moon and the sun. 7. Aristotle's biology. 8. The Ptolemaic model of the solar system. (Instructor)
DAY 4 Jan. 30	**II. THE SCIENTIFIC REVOLUTION** Part A: TWO MODELS: THE GEOCENTRIC AND HELIOCENTRIC SOLAR SYSTEMS Part B: THE BEGINNING OF EXPERIMENTAL PHYSICS <u>Reading assignment 1 due.</u>	9. Copernicus' model of the solar system 10. Kepler's laws of planetary motion (Instructor) 11. Galileo and his telescope: "The Starry Messenger". 12. Harvey's discovery of the circulation of the blood.

DATES	NOTES	HISTORICAL CONTEXTS Refer to pp. 23-28 of your course outline
DAY 5 Febr. 6	**II. THE SCIENTIFIC REVOLUTION** Part C: THE BEGIINING OF EXPERIMENTAL PHYSICS: GALILEO AND NEWTON Sign up for Historical Contexts: DAY 6 & 7	13. Galileo's inclined plane experiment 14. Torricelli's experiment: "The weight of the atmosphere". (Instructor). 15. Boyles' law: "Testing the Springiness of Air". 16. Newton's laws of motion. 17. One day in the life of Robert Hooke, the secretary of the *Royal Society*. 18. Roemer's determination of the speed of light.
DAY 6 Febr. 13	Sign up for CASE STUDIES (Assignment III) Reading assignment 2 due.	**Midterm test**: 1 hour. Film: "The Starry Messenger". (Galileo) Film: "The Majestic Clockwork". (Newton)
DAY 7 Febr. 27	**III. MODERN SCIENCE** Part A: THE NEW CHEMISTRY Part B: ATOMIC THEORY OF MATTER	19. "A day in the life of an alchemist". 20. The development of modern chemistry, from the phlogiton theory to Lavoisier's "New Chemistry". (Instructor). 21. Count Rumford and the caloric theory of heat. (Instructor). 22. Dalton's atomic theory.

DAY 8 March. 5	**III. MODERN SCIENCE...** BIOLOGY FROM MIDDLE OF THE 18th TO THE MIDDLE OF THE 19th CENTURY.	23. Stephen Hales and *the circulation of sap in plants.* 24. The Cell Theory and the question of the spontaneous generation of life. 25. Darwin's "Voyage of the Beagle" 26 Lord Kelvin and the Age-of-the-Earth controversy. (Instructor).
DAY 9 March 12	**III. MODERN SCIENCE...** THE STORY OF ELECTRICITY: FROM FRANKLIN TO FARADAY.	The study of electricity, from the Voltaic Cell to Faraday's laws of electrodynamics. (Will be presented by the instructor, with the help of colleagues).
DAY 10 March .19	Full attendance is expected. Students will be tested on these Case Studies in final exam.	CASE STUDIES PRESENTATIONS
DAY 11 March 26.	Assignment IV due.	CASE STUDIES PRESENTATIONS
DAY 12 April 2.	Assignment IV handed back.	CASE STUDIES PRESENTATIONS

DAY 13

FINAL EXAM: TO BE ARRANGED