



The Fate of Our Universe: An Introduction to Astronomy

Description

This 12-week course is an introductory course to astronomy intended to introduce and develop our understanding of time, space, relativity, and a general understanding of physics that will inspire us to look deeper into the world around us and to begin to see how we can apply certain types of knowledge (physics, quantum mechanics, biology, and astronomy) to further our own careers, as well as to develop analytical ways of thinking using evidence-based research and concepts. While this course is intended to be at an introductory-level, the terms and concepts discussed will be challenging.

In this course, students will:

- 1) Learn the fundamentals of astronomy, physics, and quantum mechanics;
- 2) Improve their reading and writing abilities;
- 3) Learn how to publish an article;
- 4) Be encouraged to apply to writing contests for narrative writing and STEM writing.



Our lessons will be partnered with the book *A Brief History of Time* by, Stephen Hawking. All materials for this class will be provided.

The instructor believes the following groups of students will benefit from this course:

- 1) Those interested in space, astronomy, and physics;
- 2) Those interested in careers in the life sciences or in STEAM;
- 3) Those intending on studying in an American high school or university;

- 4) Those intending to improve their science writing or writing in general;
- 5) Students aged 13–16.

These courses will be given online on Zoom or Microsoft Teams in a 1-hour lecture per week. The course will be taught in English and all materials provided will be in English.

Please note: This course is designed for a small group of learners who are self-motivated to establish a solid astronomy background. Attendance and assignments are mandatory. At the end of each lesson, there will be 15 minutes for questions and discussion outside lectures is encouraged!

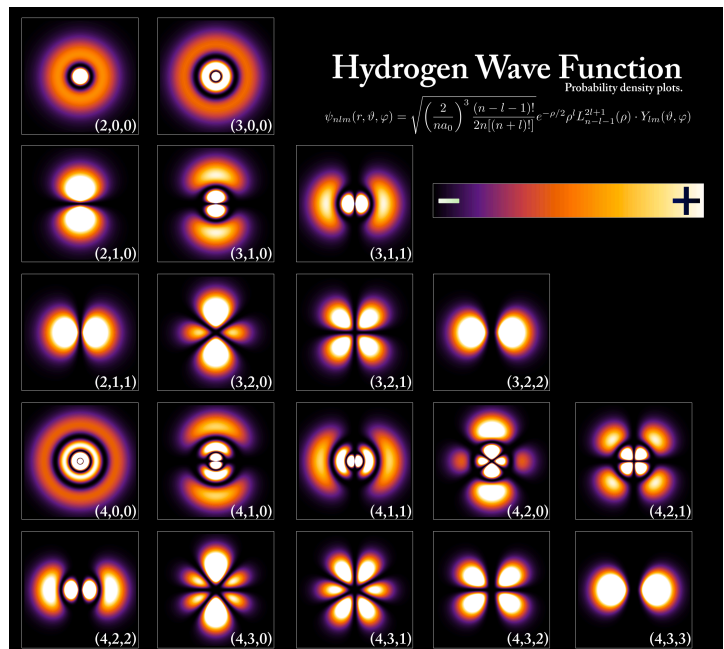
Instructor: Peter Hagan, BA in Political Economics/International Relations and Cultural Anthropology from the University of Oregon in 2012. He is the founder of HuArts Cultural Consulting Co., in Shanghai, China, where he advises cultural institutions including the Long Museum and HOW Art Museum along with numerous art galleries. In addition, he provides college entrance counseling to students preparing to study abroad.

Leader: Howard Shen, Masters of Education with a concentration in Technology from Harvard University in 1997. Mr. Shen is the founder of GetSmart!.

Weekly Schedule (Tentative)

*Classes begin 26 September 2020,
Saturday evenings, 19:00–20:00.*

- 1) An Introduction to Space, Time, Relativity
- 2) Space & Time
- 3) The Expanding Universe
- 4) The Uncertainty Principle
- 5) Elementary Particles and the



Forces of Nature

- 6) Black Holes
- 7) The Origin and the Fate of the Universe
- 8) The Arrow of Time
- 9) Wormholes and Time Travel
- 10) The Unification of Physics
- 11) The Theory of Everything
- 12) Conclusions, Discussions, Class Wrap-Up

Materials

- 1) *A Brief History of Time* by, Stephen Hawking. Published 1998. 212 Pages.
- 2) Other materials, such as news articles and resource websites, shall be provided by the instructor.

Assignments

Each week, the students will be assigned to read 1 chapter of *A Brief History of Time* along with additional materials. Each week, students will be asked to write either one or two short paragraphs on a specific topic from the week's reading or to write a longer essay.



Students will be encouraged to submit to the NY times writing contest this winter for the STEM category essay.

Rubric

The following rubric is for longer essay assignments assigned during the course:

Item	1-2	3-5	6-8	9-10
Grammar	Obvious grammatical errors, punctuation mistakes, poor verb conjugation that should have been caught by spellcheck	Basic grammatical errors, punctuation mistakes, poor verb conjugation that should have been caught by proofreading	Minor grammatical errors, punctuation, etc.	Few or no grammatical mistakes; sentences read fluently, punctuation is appropriate and not overused or underused;
Spelling	Multiple obvious spelling errors that should be addressed with spellcheck; spelling errors affect comprehension of text	Basic spelling errors, the spelling does not affect comprehension but it stands in the way of easy reading	Minor spelling errors, confusion of words, minor mistakes when spelling difficult words, or mistakes in conjugation	Few or no spelling errors
Vocabulary	Careless or inaccurate word choice that obscures meaning	Language that is trite, vague, or flat	Shows some variety of word choice, there is purposeful use of words	Effective and engaging use of word choice
Conciseness	Frequent run-ons or fragments, poor punctuation, poor understanding of the material	Writer inserts unnecessary sentences or opinions that are out of place; essay is not focused on topic	Writer uses clear point of view and writes with an understanding of the audience; sentences are of appropriate length for topic	Writer has a strong sense of style and voice and communicates concepts and ideas clearly and succinctly and with style
Organization	Writing is disorganized and underdeveloped with no transitions or closure	Writing is brief and underdeveloped with weak transitions and closure	Uses correct writing format, incorporates a coherent closure to ideas and makes transitions between ideas	Writing includes a strong and clear beginning, middle, and end with appropriate transitions and good closure
Logic	Writing is extremely limited in communicating knowledge with no central theme	Writing is limited in communicating knowledge; length may not be appropriate	Writes related ideas, quality paragraphs, coherent concepts, and does not diverge from topic	Writing is purposeful and focused; ideas contain examples and details

Item	1-2	3-5	6-8	9-10
Data	Writer uses no relevant information from the resources	Writer uses limited data from resources, may not apply concepts appropriately	Writer uses data from resources, applies the data in relevant ways	Writer uses data from resources with a keen understanding of implications and addresses those implications
Beginning	Has no introduction and/or does not have a thesis statement	Has a weak introduction and a weak thesis statement that does not introduce topics discussed in the essay	Has an introduction and a thesis statement that are relevant to the essay	Has an introduction and thesis statement that are both relevant in addition to providing an outline for the contents of the essay
Conclusion	Has no conclusion or conclusion is not related to essay	Conclusion is present but it does not provide a relevant summary of the essay and does not draw conclusions	Conclusion summarizes essay and outlines ideas presented	Conclusion is concise, draws clear, logical ideas and implications from the material included

Registration

Please register with the link:

<https://forms.gle/jCYM4TxkHYKPLE8o6>,

or with the QR code,

or by email hshen@ginsengedu.com



微信号: getsmartest

