

Journey of the Universe

Curricular Materials Prepared by
Matthew Riley
Research Assistant, Forum on Religion and Ecology at Yale

Overview:

The *Journey of the Universe* film, book, and Educational Series are part of an expansive, multidisciplinary project that can be used by educators and others to develop a sense of embeddedness and identity within the unfolding universe. This deep sense of belonging and participation can, in turn, not only help students to come to a more meaningful understanding of their own place and role in the story of the universe, but it can also empower them to participate in the story in a way that is mutually enhancing for the human and for the larger Earth community in which we reside.

At first glance, the epic time-scale, the breadth of scientific knowledge, and the deep understanding of history and ecology that is needed to teach the *Journey of the Universe* might appear to be overwhelming. However, a complete understanding of these aspects of the *Journey of the Universe* is not required in order to teach these materials effectively. In fact, we are at a transition point in history in which most of us are discovering this new story of the universe for the first time. We have only recently developed the tools and scientific knowledge to understand the world about us; we are all learners. For most educators, teaching the *Journey of the Universe* will be a cooperative project, where students and teachers learn side by side as they journey together through the book, film, and Educational Series. To assist you, we have created a series of scientific summaries, discussion questions, and resources to help you get started. The curricular materials here are primarily designed to accompany the *Journey of the Universe* book (Yale University Press, 2011) and film.

Grade Level:

The *Journey of the Universe* curriculum is primarily designed for use in undergraduate classrooms, in upper-level high school classrooms, in learning centers, in places of worship, and at conferences.

Teaching Philosophy:

While the curriculum provided here is focused on intellectual engagement and discussion, we encourage the use of multiple learning modalities. Art, song, hands-on learning projects, self-reflection, kinesthetic activities and experiences, poetry, and many other forms of teaching and learning can be used. We urge you to be creative in your teaching.

Teaching Goals:

The *Journey of the Universe* curriculum is designed with four broad goals in mind. After reading the book, watching the film and Educational Series, and using the *Journey of the Universe* curriculum, students should be able to:

1. Understand and express a basic understanding of the unfolding of the universe, Earth, and humans by drawing upon both science and the humanities.
2. Experience a sense of embeddedness and orientation within the evolutionary development of the universe. Students should feel, as the film suggests, “We belong here. We have always belonged here.”
3. Integrate the ideas found in the film, book, and Educational Series with other areas of knowledge and their own life experiences.
4. Develop a sense of meaningful empowerment and participation in the epic of evolution. Students should feel equipped to participate in this immense journey in a way that is mutually enhancing for both humans and the Earth.

Contents:

The eleven curricular pieces that accompany this introduction each contain the following elements:

1. **Index**: Each curricular piece is organized thematically to coincide with the chapters found in the *Journey of the Universe* book (e.g. “Beginning of the Universe,” “Life’s Emergence,” “Emerging Earth Community,” and so forth). For your convenience, we have listed the corresponding scenes from the film and Educational Series that supplement that particular chapter in the book.
2. **Scientific Summary**: Each curricular piece contains a brief summary of the science found in that portion of the book and film.
3. **Discussion Questions**: A short set of discussion questions are provided. They may be modified to suit your students’ needs.
4. **Online Resources**: A short list of online resources for each section of curriculum is provided in each curricular piece. These resources may aid your search for other videos, audio files, books, charts, timelines, and images needed to add depth and breadth to your teaching.
5. **Print Resources and Select Bibliography**: These two sections of each curricular piece highlight pertinent books and bibliographic resources that can be used to enhance your teaching or the research of your students. **There is an extended bibliography on the [Journey of the Universe website](#).** It is organized from the unfolding of the early universe, through galaxies, stars, and planets, to the present day.

Related Courses and Resources:

The Epic of Evolution:

- [Eric Chaisson](#), an astrophysicist, has taught a course on cosmic evolution since 1976. Download the syllabus for his course entitled “[Cosmic Evolution: The Origins and Matter of Life](#)” or visit the [course website](#) for videos, graphics and animations, a glossary, and a wide variety of educational resources related to cosmic evolution.
- [Ursula Goodenough](#), a professor of Biology at Washington University in St. Louis, has been teaching a course on the Epic of Evolution for more than 10 years. Visit the [course website](#) for a description of the course, a syllabus, and for other pertinent teaching materials.

Big History

- [David Christian](#), a historian at Macquarie University in Sydney, Australia, has published and lectured widely on the topic of “big history.” He is the author of [Maps of Time](#) (University of California Press, 2005) and he leads the educational content development for the [Big History Project](#). He is considered the originator of the newly emerging field of big history which expands world history to include the evolution of the universe and Earth.
- Cynthia Stokes Brown has been teaching, and writing about, the “[big history](#)” approach to understanding the evolution of the universe, Earth, and humans for more than twenty years. She teaches at the Dominican University of California where students begin their college education with two courses in big history in a program called the [First Year Experience “Big History.”](#) A PDF of her syllabus is available on the [Journey of the Universe website](#).

Genesis Farm and the Charter School:

- For more than three decades, Sister Miriam MacGillis and her colleagues at [Genesis Farm](#) have been educating through the Genesis Farm Eco-learning center and the community supported garden. They have offered hundreds of workshops and courses on the universe story and educated many people in North America, as well as in England, Ireland, and Australia.
- The [Ridge and Valley Charter School](#) is an elementary charter school affiliated with Genesis Farm whose curriculum is based on themes of Earth literacy and sustainability within the context of the universe story. You can download a PDF of their curriculum on the [Journey of the Universe website](#).
- [Drew Dellinger](#) is a spoken word poet who has written poetry and given workshops on the universe story for 20 years.
- [Jennifer Morgan](#) has written an [award-winning trilogy of children’s books](#) based on the universe story.

- A number of interviewees in the *Journey of the Universe* Educational Series describe their experience teaching the story of the universe. For the past 20 years, Tom Collins has been a dedicated teacher of the story of the universe at the secondary school level. Other interviewees who describe their experience teaching the story of the universe include Nancy Abrams, Sachiko Kawaura, Belvie Rooks, and Bindu Mohanty.

Curriculum Updates:

The curricular materials provided on the website represent the first stage in the creation of the *Journey of the Universe* curriculum. We will be expanding the teaching materials with contributions from those already teaching the *Journey of the Universe*, with lesson plans and activities, and with more resources, discussion questions, and study guides. Please check our website for future curricular updates.

We encourage you to share lesson plans, syllabi, useful websites, activities, and other curriculum related resources with us. Additional resources can be sent to matthew.riley@aya.yale.edu