

Physics 80C Term Project Proposals – 17 Proposals, 10 Presentations (*)

REQUIREMENTS FOR ALL TERM PROJECTS: Each team must submit a one or two page explanation of how their project relates to Physics 80C, and include a statement of the contribution of each member of the team signed by all the team members.

*1. Andrew Johnson, David Cochran, Ioana Anghel, and Reuben Youngblom

This team wants to explore central questions in the **interaction between science and religion concerning belief in a cosmology**. Their questions are clearly stated and very well chosen. This could be an important project. Reading recommendations - see the Recommended Books on the Syllabus, especially Ian Barbour, *When Science Meets Religion* (1991). The group could also interview people if they have time to find a broad range (not just UCSC students). They want to play prisoners dilemma with class as presentation – why is this relevant, and how long would it take?

*2. Roxanna Arakozie, Daniela Chavez, Dulce Escobar, and Martin Lopez

The Aztec Calendar. They want to explain the calendar, its connection to religious observances, and its agricultural uses. This needs a tighter connection to Physics 80C, e.g. Is there any aspect of the mythology surrounding the Aztec calendar that could possibly be used to explain some concept in modern cosmology?

3. Callum Rowe and Jake Wilson

Cosmological View of the Maya. This proposal was written by Callum in the first person singular, and apparently later Jake. The idea seems good, and Joel answered Callum's request for reading recommendations.

*4. Derek Fleck, Chris Deming, and Ben Sandler

Cosmic Music. They want to write background music for Joel's, Piero Madau's, and maybe other faculty members' simulations. Sounds like they have music writing experience, but we can't tell. They have to also prepare a page or two of explanation as to what exactly is the feeling they are trying to convey with their music and why is this the feeling that *should* be conveyed about the universe? How does it help us interpret the simulation? They should start on the Via Lactea simulation <http://www.ucolick.org/~diemand/vl/>, since Bach doesn't really fit it.

5. Fanny Yao and Tai C. Wong

Chinese and Japanese Cosmology. Thesis is that both were once one but then diverged, and that the way they each developed affected the way cosmology was studied. Unclear what they mean by studied, or by whom. All resources listed are about China, so they need resources on Japanese cosmology.

*6. Yael Ofer, Jason Brownstein, Duy Nguyen, Kyle Gunning

How astronomical cycles influence biological cycles, which in turn influence culture.

Interesting question. Will have to see how it relates cosmology to biology. Need to give authors and dates of books they plan to read – only titles given. Powerpoint presentation.

7. Rachel Ross

The meaning of the Phoenix symbol. How it was used in ancient cultures, and how it could symbolize modern cosmology. Unclear what she plans, but she feels that the Phoenix's characteristics of immortality and healing ability are also characteristic of modern cosmology.

*8. Thomas Lagos

Producing a **digital visualization of the universe** using a combination of videos and a technique called datamoshing. His purpose is to “express myself artistically.” He also needs to write a couple of pages explaining what we learn about cosmology from this video.

*9. Kelley Hearney, Silvia Soule, Angie McCartney, Ben Michlin

Kelley will focus on **symbols of Chaos as Water in the ancient world** and try to see if they can be used to symbolize aspects of dark matter. Sounds interesting. The other three students will focus on different symbols and they will present a slide show.

*10. Meagan Oldfather, Nathan Green, Sarah Traiger, Sam Saxe, Kelsey Collier, Pippa Baker-Rabe, Nathan Kandus

Eschatology – how religions, popular culture, and scientific theories see it. However, the four scientific theories they want to study are: Big Crunch, Big Freeze, Heat Death of Universe, and Big Bounce. They need to understand the current astronomical possibilities. Powerpoint.

11. Max Stokols and Sarah Napoli

Chinese Cosmology Comicbook, explaining the Chinese mythology of 10 suns. Not clear why they say that this mythology is “perfect for comprehending the role that cosmology plays today.” They will also write a short paper.

*12. Julia Franceschini, Sarah Jaffe, Cooper Firth, Kyle Kaplan, Krystle Okialda

Role of Astrophotography in creating cultural pictures of the universe, including hoaxes based on interpretations of photos. They want to explain “how do cosmologies begin?” Will do presentation.

13. Elan Stopnitzky

The Future of Observatories. Examines the role of ancient observatories in their cultures and proposes a new kind of observatory as not only scientific research center but temple where people can go to find their connection to the cosmos. Brilliant idea if he can pull it off.

*14. Martin Lopez, Catharine Crayne, Megan Wells, Raymond Calderon, Moira Garcia

Mayan and Aztec Dances (they will perform). Then they will “discuss how we can try living in a way that is similar.” They need to develop at least one new dance, like the earth-moon dance in the first lecture, that actually says something about modern cosmology.

15. Sachi Allen, Hunter Francis, Kathy Phan, Cassie Wilcox, John Wilson

Children’s book telling Hindu story of creation alongside modern cosmology. Could be great – depends on whether they can mesh the two plots. That is Hunter’s job.

*16. Michael Schade, Rhiannon Benson, Matthew Griego, Nathan Barth

Ethical Implications of Modern Cosmology. Powerpoint presentation, going deeper into issues raised in *The View from the Center of the Universe*.

17. Eli Schulman, Katie McCormick, Chelsea Enslow, Steve Ramirez

Children’s comicbook explaining modern cosmology and relating it to everyday life.

NOTE: For presentations we will set up the classroom with multiple seats at the long table in the front, like a panel discussion, and everyone on a project should sit at the table, even if they are not doing the presentation. Then everyone can see how many people are involved and they can answer questions afterward.