

Dear First Three Minutes Class,

There is no reading assignment for Wednesday. For this last meeting, we'll talk about two things that came after the first three minutes (both after the book and in the chronology of the universe):

Dark matter - a mysterious substance that does not interact (much) strongly, weakly, or electromagnetically but does interact gravitationally. It seems to play very little role in the early universe, but sets that stage for galaxy formation 200 My in.

Dark Energy - almost completely invisible until about 4 billion years ago, but will drive the universe apart from now on.

We'll finish with an overall summary.

### Meeting 10 Agenda

1. Introduction and announcements - 5'
2. Dark Matter - 20'
3. Dark Energy - 20'
4. Break - 5'
5. Summary - 20'

## 6. Perspectives and questions - 10'

Here is the zoom link (is it the same one as before): <https://zoom.us/j/91367940095?pwd=WWNGVGJ4NU9FS1JLRW1haUNEUUiQT09>

Peter

Peter Fisher  
[fisher\\_p@mac.com](mailto:fisher_p@mac.com)