

Oberlin College Physics 212, Fall 2021

Assignment 1:

Space and Time in Relativity

Wednesday, 6 October

In Physics 110 you learned about space and time in relativity. Now we turn to things like momentum and energy in relativity.

Reading: My handouts *Space and Time in Special Relativity* and *Notes on Relativistic Dynamics* closely follow the lectures. (Big surprise.) For different approaches, there are hundreds of books available and thousands of web sites. Caution: some of these broadcast misconceptions.

Read also appendices A, B, and D of *Invitation to Quantum Mechanics*. These appendices describe my expectations for your work in problem assignments. Remember particularly the statement from the syllabus: “In writing your solutions, do *not* just write down the final answer. Show your reasoning and your intermediate steps. Describe (in words) the thought that went into your work as well as describing (in equations) the mathematical manipulations involved.”

Problems: Due at 11:00 AM on Wednesday, 13 October.

1. “Notes on Relativistic Dynamics” problem 1.5: *Interval*
2. “Notes on Relativistic Dynamics” problem 1.9: *Galactic journey*
3. “Notes on Relativistic Dynamics” problem 1.10: *Flushing out an error*
4. “Space and Time in Special Relativity” problem 3: *Pole in the barn*