Physics 2211: *Matter and Interactions*

Chapter 3 Standards

1. I can list the four fundamental types of interactions.
2. I can calculate the (vector) gravitational force exerted by one object on another.
3. I can use a force law to update the momentum and position of an object.
4. I can relate the momentum principle to the vector trajectory of an object subject to a spring force.
5. I can relate the momentum principle to the vector trajectory of an object subject to a gravitational force.
6. I can utilize the approximation for the gravitational force near the surface of the earth.
7. I can calculate the (vector) electric force exerted by one charged object on another.
8. I can compare the electric force to the gravitational force between the two charged particles.

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9. I can apply the property of “reciprocity” to forces between two particles.
10. I can use the conservation of momentum to solve a problem involving momentum transfer between a system and its surroundings.
11. I can find the center of mass velocity of a system
12. I can apply the momentum principle to a system consisting of many particles.
13. I can list the reasons our deterministic model has limitations.
14. I can write a VPython program that numerically solve iterative problems and display trajectories for changing forces.