2.10 Newton's Law of Universal Gravitation

PRE-LECTURE READING 2.10

- *Astronomy Today,* 8th Edition (Chaisson & McMillan)

- *Astronomy Today,* 7th Edition (Chaisson & McMillan)

- *Astronomy Today,* 6th Edition (Chaisson & McMillan)

VIDEO LECTURE

- Newton's Law of Universal Gravitation[1] (17:24)

SUPPLEMENTARY NOTES

Newton's Law of Universal Gravitation

- See Newton's Law of Universal Gravitation[2].

Every particle of matter in the universe attracts every other particle with a force that is directly proportional to the product of the masses of the particles and inversely proportional to the distance between them.

$$F = \frac{GMm}{r^2} \tag{13}$$

- F = force of gravity

- G = Newton's gravitational constant

- M = mass of first object

- m = mass of second object

- r = distance between first and second objects

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[1]http://youtu.be/jBnM3kysssA
[2]http://en.wikipedia.org/wiki/Newton's_law_of_universal_gravitation

EXERCISES

- Experiment with UNL's Newton's Law of Gravity Calculator[3].

- Experiment with UNL's Gravity Algebra[4].

ASSIGNMENT 2

- Do Question 10.

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[3]http://astro.unl.edu/classaction/animations/renaissance/gravcalc.html
[4]http://astro.unl.edu/classaction/animations/renaissance/gravalgebra.html