PHY232 General University Physics

Sections 001 , 002, 003, and 004

About myself:
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Course web page:
http://www.pa.uky.edu/~kwng/fall2017

About this course

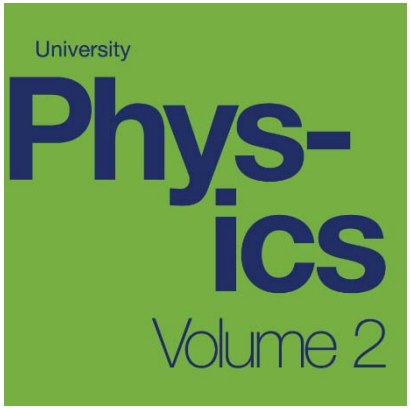
Time: M, W, and F 9:00-9:50 p.m.

Place: CP 153

Text book:

University Physics Vol. 2 by Samuel J. Ling, Jeff Sanny, and Bill Moebs (ISBN-13: 978-1-938168-16-1). Download this textbook free and legally at the following website:

https://openstax.org/details/books/university-physics-volume-2



Grading policy

Homework	100 pts
Recitation quizzes	60 pts
Lecture quizzes	20 pts
Class work	20 pts
Test 1	100 pts
Test 2	100 pts
Test 3	100 pts
Final Examination	200 pts
Total	700 pts

1. Homework: 10 attempts allowed for each problem. Each homework set carries equal weight.
2. Recitation quizzes: All quizzes carry equal weight. Two lowest scores will be dropped.
3. Class work: Each lecture carries equal weight. Two lowest scores will be dropped.
4. Lecture quizzes: All quizzes carry equal weight. Two lowest scores will be dropped.

Final Grades

Grading scale for undergraduates:

92 % or above	A
80% or above	B
60% or above	C
50% or above	D
Below 50 %	E

The actual curve at the end of the semester may be adjusted according to the class performance and it may be slightly easier than the above letter grade assignment.

PHYSICS IS NOT A SPECTATOR SPORT

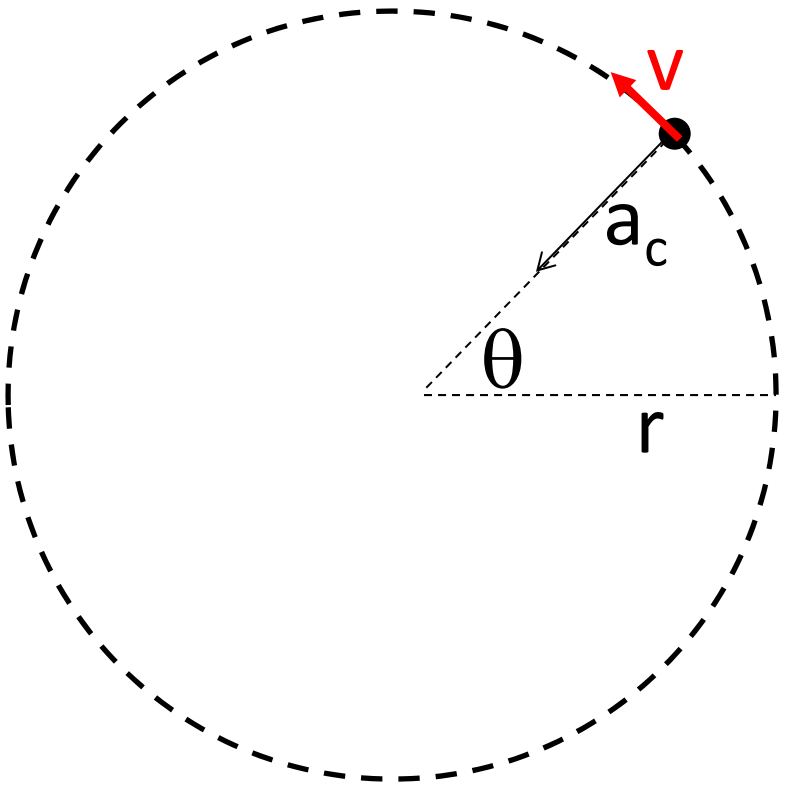
YOU HAVE TO PLAY IT!

DON’T BE AN AUDIENCE

BE A PLAYER!

Class 1: Circular motion and Gravitational Law

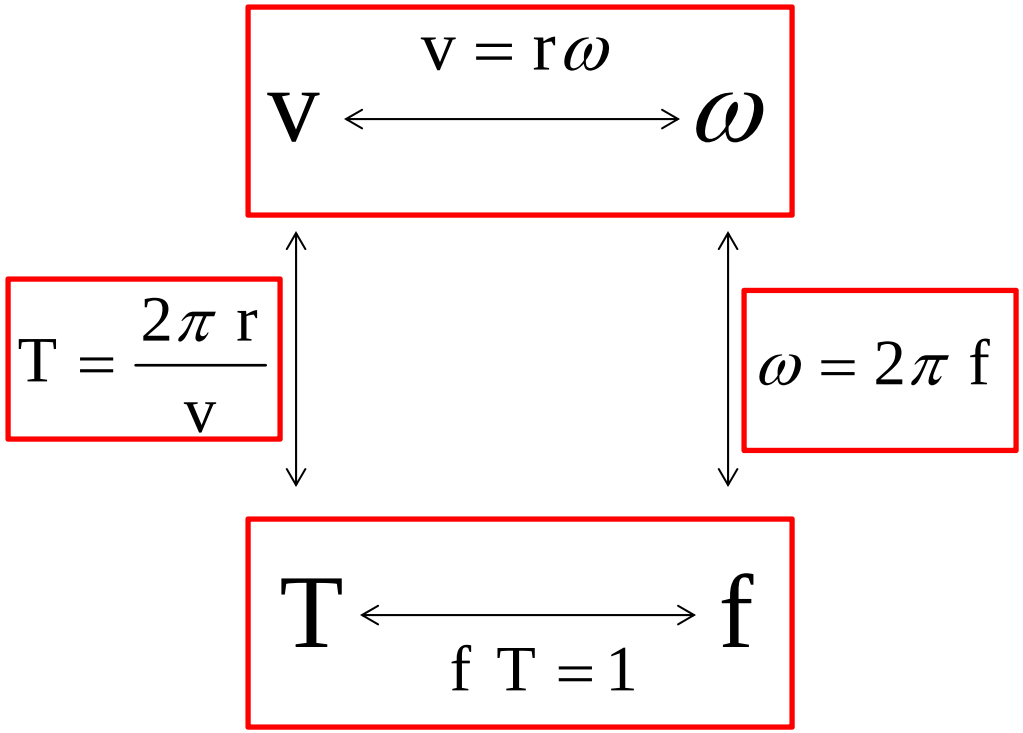
Circular motion with uniform speed



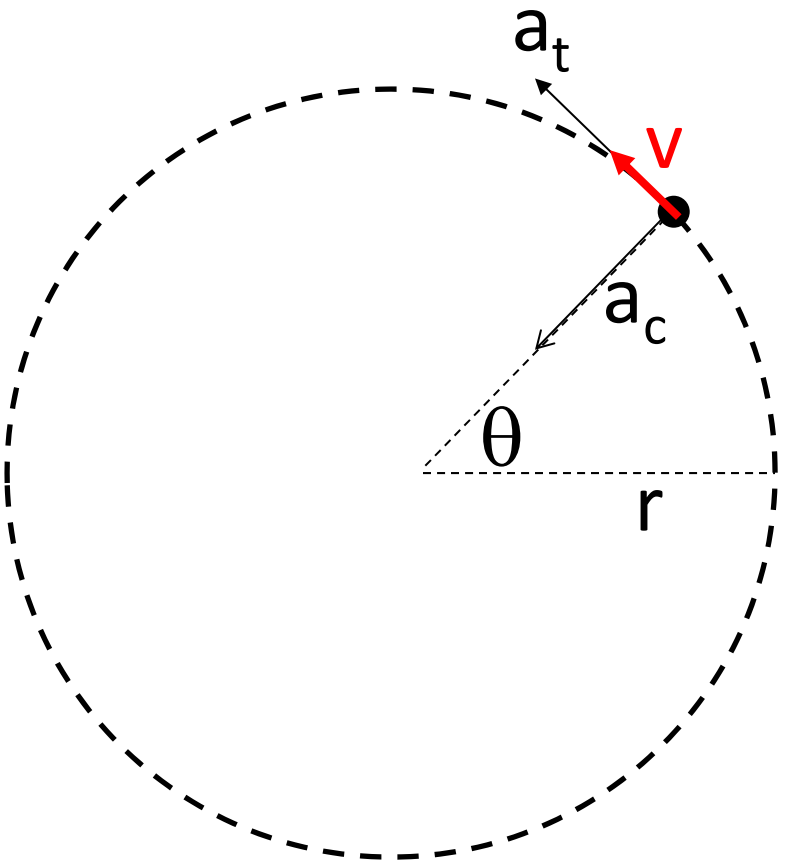
1. Speed is constant, but not the velocity.
2. So there must be acceleration.
3. What are the direction and magnitude of this acceleration?

$$a_c = \frac{v^2}{r}$$

If the speed is constant:
they are the same thing!



When the speed is not constant



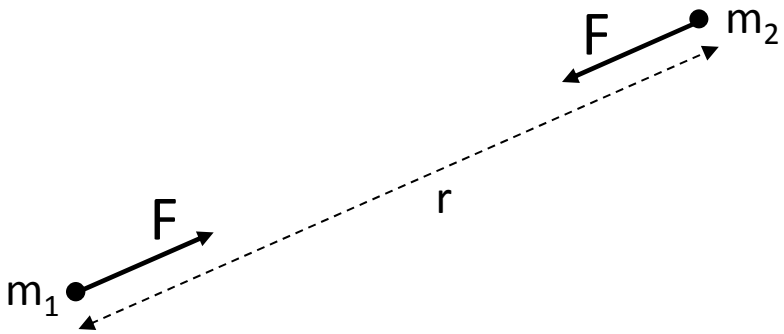
There will be a tangential acceleration (a_t)causing the change in speed.

The centripetal acceleration is still calculated in the same way:

$$a_R = \frac{v^2}{r}$$

Only difference is, v is not a constant anymore $\Rightarrow$ a_T

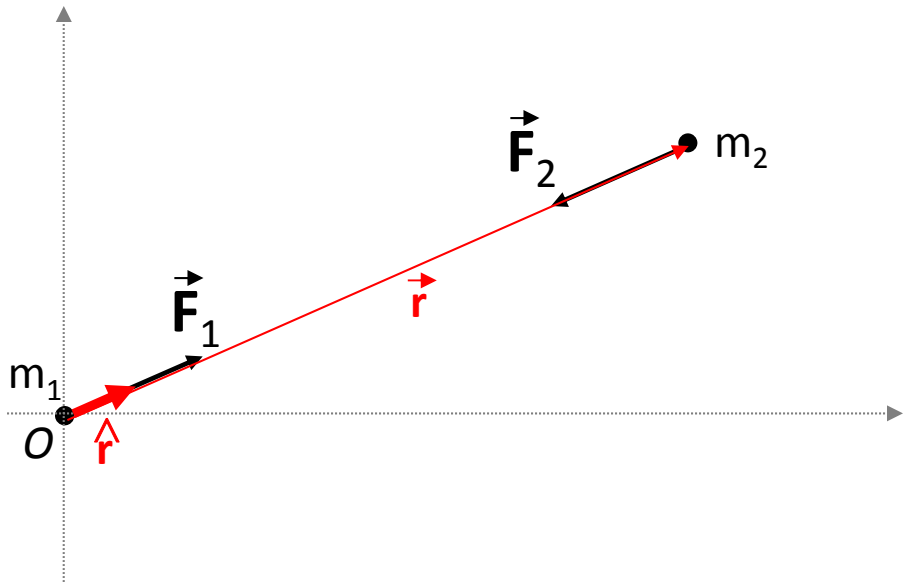
Gravitational attraction between two point particles



$$F = G\frac{m_1 m_2}{r^2}$$ ← Magnitude equation

Always attractive!

Gravitational attraction between two point particles



$$\vec{F}_1 = G\frac{m_1 m_2}{r^2}\hat{r} = G\frac{m_1 m_2}{r^3}\vec{r}$$

$$\vec{F}_2 = -\vec{F}_1 = -G\frac{m_1 m_2}{r^2}\hat{r} = -G\frac{m_1 m_2}{r^3}\vec{r}$$

← Vector equation