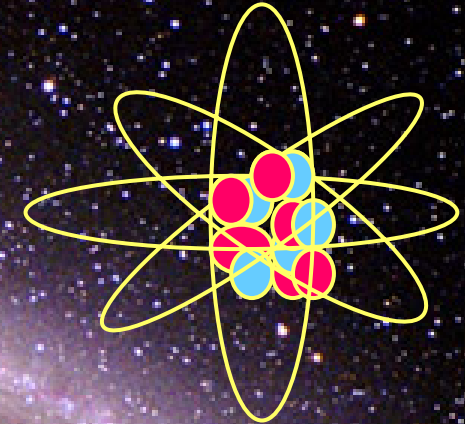


WELCOME to Physics 100

This class is a tour of the universe as seen by modern science. Physics 100 is designed for non-science majors. The course is conceptual and the use of mathematics will be limited.

- motion
- Work
- Energy
- Gravitation
- Conservation of momentum and energy
- Constant acceleration motion
- Rotational motion
- Thermodynamics
- Waves
- light
- electricity and magnetism
- nuclear forces
- Standard Model of particle physics
- The Big Bang
- Dark matter
- stellar evolution
- Special Theory of Relativity
- General Theory of Relativity
- Quarks, leptons, gluons, baryons, mesons, etc.
- cosmic microwave background
- quantum mechanics
- Heisenberg's Uncertainty Principle
- electricity and magnetism
- radiation
- nuclear bombs
- etc.

No previous physics instruction is assumed.



**The intimate relationship
between the very big and the
very small**

Things could be worse ...



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Name

University (@mail ...) email address

Year: Fr/So/Jr/Sr?

Did you receive the email I sent earlier in the week to the class listserve? Yes/No If “No”, provide SID

Favorite midnight snack

Major/main career interest

Why you are in this course

Evaluation:

Scheme	Exam 1	Exam 2	Final exam	Present.	recitation	Present. grading
1	---	29.33%	29.33%	29.33%	8%	4%
2	29.33%	---	29.33%	29.33%	8%	4%
3	29.33%	29.33%	---	29.33%	8%	4%
5	22%	22%	22%	22%	8%	4%

Each scheme calculated, best average sets your place on the numerical curve

I place grade boundaries on numerical curve

Length:

Distance	Length (m)
Radius of visible universe	1×10^{26}
To Andromeda Galaxy	2×10^{22}
To nearest star	4×10^{16}
Earth to Sun	1.5×10^{11}
Radius of Earth	6.4×10^6
Sears Tower	4.5×10^2
Football field	1.0×10^2
Tall person	2×10^0
Thickness of paper	1×10^{-4}
Wavelength of blue light	4×10^{-7}
Diameter of hydrogen atom	1×10^{-10}
Diameter of proton	1×10^{-15}

Time:

Interval	Time (s)
Age of universe	5×10^{17}
Age of Grand Canyon	3×10^{14}
32 years	1×10^9
One year	3.2×10^7
One hour	3.6×10^3
Light travel from Earth to Moon	1.3×10^0
One cycle of guitar A string	2×10^{-3}
One cycle of FM radio wave	6×10^{-8}
Lifetime of neutral pi meson	1×10^{-16}
Lifetime of top quark	4×10^{-25}

Mass:

Object	Mass (kg)
Milky Way Galaxy	4×10^{41}
Sun	2×10^{30}
Earth	6×10^{24}
Boeing 747	4×10^5
Car	1×10^3
Student	7×10^1
Dust particle	1×10^{-9}
Top quark	3×10^{-25}
Proton	2×10^{-27}
Electron	9×10^{-31}
Neutrino	1×10^{-38}