Introduction

What is Ast 104?
What should you do:
- Read the Book before class
- Outline the material
- Attend Lectures
- Fill out your outline
- Grading

Disability

If you have a documented disability that may require assistance, you will need to contact the Disability Services (DS) for coordination in your academic accommodations. Disability Services is located within the Learning Enhancement Services (LES), in the Reynolds Student Services Complex, Suite 137. The phone number is 895-0666 or TDD 895-0652.

Magic of good grades

In a land of science and a time of university the grades of a great student rest on the shoulders of an old man. His name: Dr. Lepp

Attend Lectures

Learn what I thought was important
Lectures will expand on some material
Ask questions

Attend Lectures

A good friend is someone who visits you while you are in prison. A really good friend is someone who comes to hear your lectures.
Slakan saying: “Rates of Exchange” Malcolm Bradbury

Ancient Sky

- Stars
- Sun
- Moon
- Five Planets (Mercury, Venus, Mars, Jupiter, Saturn)
- Comets and asteroids and other small bodies
- nebula

days of the week

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun</td>
<td>Sunday</td>
<td>domingo</td>
</tr>
<tr>
<td>Moon</td>
<td>Monday</td>
<td>lunes</td>
</tr>
<tr>
<td>Mars</td>
<td>Tuesday</td>
<td>martes</td>
</tr>
<tr>
<td>Mercury</td>
<td>Wednesday</td>
<td>miércoles</td>
</tr>
<tr>
<td>Jupiter</td>
<td>Thursday</td>
<td>jueves</td>
</tr>
<tr>
<td>Venus</td>
<td>Friday</td>
<td>viernes</td>
</tr>
<tr>
<td>Saturn</td>
<td>Saturday</td>
<td>sábado</td>
</tr>
</tbody>
</table>

Average Distance from Sun (AU)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury</td>
<td>0.39</td>
</tr>
<tr>
<td>Venus</td>
<td>0.72</td>
</tr>
<tr>
<td>Earth</td>
<td>1.00</td>
</tr>
<tr>
<td>Mars</td>
<td>1.52</td>
</tr>
<tr>
<td>Jupiter</td>
<td>5.20</td>
</tr>
<tr>
<td>Saturn</td>
<td>9.54</td>
</tr>
<tr>
<td>Uranus</td>
<td>19.18</td>
</tr>
<tr>
<td>Neptune</td>
<td>30.06</td>
</tr>
<tr>
<td>Pluto</td>
<td>39.5</td>
</tr>
</tbody>
</table>
Outer Planets

- Neptune
- Uranus
- Neptune
- Saturn
- Pluto

Inner Planets

- Mars
- Earth
- Venus
- Mercury

Planet Fun Facts

- Mercury is closest and takes 88 days to travel round the sun
- Pluto is furthest (on average) and takes 248 years to travel round the sun
- Mercury, Venus, Mars, Jupiter and Saturn are visible to the naked eye
- Pluto was discovered by an American in 1930.

Stars

- Stars are millions of times further
- Other solar systems other planets
- Range in mass from $\frac{1}{10}$ to 100 times our sun
- Range in Luminosity from $\frac{1}{1000000000}$ to 100000 times our sun

Giant Star

Dwarf Star

Scientific Notation

Express numbers in a general form,

$$X \times 10^n,$$

which is convenient for both large and small numbers.

So for example $2.3 \times 10^3$ is 2300. $2.3 \times 10^{-3}$ is 0.0023. What is $4 \times 10^2$?

Powers of Ten

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Symbol</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>nano-</td>
<td>n</td>
<td>$10^{-9}$</td>
</tr>
<tr>
<td>micro-</td>
<td>µ</td>
<td>$10^{-6}$</td>
</tr>
<tr>
<td>milli-</td>
<td>m</td>
<td>$10^{-3}$</td>
</tr>
<tr>
<td>centi-</td>
<td>c</td>
<td>$10^{-2}$</td>
</tr>
<tr>
<td>kilo-</td>
<td>k</td>
<td>$10^3$</td>
</tr>
<tr>
<td>mega-</td>
<td>M</td>
<td>$10^6$</td>
</tr>
<tr>
<td>giga-</td>
<td>G</td>
<td>$10^9$</td>
</tr>
<tr>
<td>tera-</td>
<td>T</td>
<td>$10^{12}$</td>
</tr>
</tbody>
</table>
Sample Quiz

The following questions are a sample quiz.

Question

1. What is Ast 104?
   (a) Stars and Galaxies
   (b) A Lot of FUN
   (c) A science requirement
   (d) all of the above
   (e) none of the above

Answer

(d) All of the above.
Ast 104 is not Stars and Galaxies, but "Stars and Galaxies" is the title of the course, which will certainly be a lot of fun and fulfill the science requirement.

Question

1. What is the farthest Planet to the sun?
   (a) Mars
   (b) Mercury
   (c) Earth
   (d) Moon
   (e) Pluto

Answer

(b) whomever wrote this question was apparently unaware Pluto is no longer a planet.
Neptune is the furthest planet from the Sun.

Question

1. What is $7 \times 10^3$?
   (a) 700
   (b) 7,000
   (c) 7,000,000
   (d) 0.007
   (e) 0.0007

Answer

(b) 7,000