You should be familiar with the work of the following scientists whom we have discussed in this class:
- Pythagoras
- Aristotle
- Ptolemy
- Copernicus
- Brahe
- Kepler
- Galileo
- Newton
- Franklin
- Faraday
- Maxwell
- Michelson
- Einstein

You should be familiar with the following scientific theories/ideas:
- Scientific Method
- Limitations of Science
- Epicycles
- Heliocentric (sun-centered) theory of planets
- Kepler’s Laws
- Uncertainty in Measurement
- Aristotle’s Theory of Motion
- Galileo’s Law of Inertia
- Galileo’s Law of Falling
- Galileo’s Superposition
- Galilean Relativity
- Conservation of Momentum Principle
- Conservation of Energy
- Newton’s 2nd Law
- Newton’s 3rd Law
- Newton’s Law of Gravity
- Conservation of Energy
- The 2nd Law of Thermodynamics (Entropy)
- Coulomb’s Law
- Maxwell’s Prediction of Electromagnetic Waves
- Einstein’s Special Relativity

You should be able to explain the following experiments/demonstrations that we discussed/performed in class or workshop:
- Full Phase of Venus
- Projectile Striking a Falling Can
- Falling Objects
- Heads or Tails with Many Coins
- Speed of Sound
- Doppler Shift
- Currents Deflecting a Compass
- Tesla Coil Lights up Distant Bulb
- Speed of Light Measurement
- Two-source Light Experiment
- Michelson-Morley Experiment
- Einstein’s “Thought” Experiments
You should understand and be able to explain the following terms:

<table>
<thead>
<tr>
<th>Term</th>
<th>Term</th>
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</thead>
<tbody>
<tr>
<td>Hypothesis</td>
<td>Retrograde Motion</td>
<td>Ellipse</td>
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<tr>
<td>Inertia</td>
<td>Scientific Notation</td>
<td>Uncertainty</td>
</tr>
<tr>
<td>Vector</td>
<td>Thermal Energy</td>
<td>Relativity</td>
</tr>
<tr>
<td>Friction</td>
<td>Entropy</td>
<td>Wave</td>
</tr>
<tr>
<td>Interference</td>
<td>Medium</td>
<td>Electric Charge</td>
</tr>
<tr>
<td>Bar Magnet</td>
<td>Compass</td>
<td>Time Dilation</td>
</tr>
<tr>
<td>Big Bang Theory</td>
<td>Gravitational Lens</td>
<td></td>
</tr>
</tbody>
</table>

You should understand and be able to explain and calculate relations among the following quantitative measurements. You should also know the units associated with these quantities.

<table>
<thead>
<tr>
<th>Term</th>
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</thead>
<tbody>
<tr>
<td>Distance</td>
<td>Direction</td>
<td>Velocity</td>
</tr>
<tr>
<td>Speed</td>
<td>Acceleration</td>
<td>Mass</td>
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<tr>
<td>Momentum</td>
<td>Time</td>
<td>Force</td>
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<td>Work</td>
<td>Energy</td>
<td>Power</td>
</tr>
<tr>
<td>Amplitude</td>
<td>Wavelength</td>
<td>Frequency</td>
</tr>
<tr>
<td>Wave Speed</td>
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