Introduction to General Relativity (aka Gravity)

Introduction

- Scale of the technological achievement of GW detectors
- Really cool astrophysical objects
    - Stellar remnants
    - Explosions
    - (supra-)nuclear matter
- General Relativity (GR) itself is cool
- Novel analysis techniques

Gravity (aka General Relativity)

- Physics: equivalence principle is an *observed fact*
- Geometry: curved space can describe force-free gravity
- (More) Physics: nothing travels faster than the speed of light

Gravitational Waves

- test fundamental physics
- tell us new things about objects we already knew existed
- tell us things about objects we had no other way of observing

Suggested Reading

- *Black Holes and Time Warps*. Kip S Thorne.
- *The Universe in a Nutshell*. Stephen Hawking.
- *Was Einstein Right?: Putting General Relativity to the Test*. Cliff Will.