ESS 210 Physical Geology

- **Instructor: J. Michael Brown (ATG 220)**
  - **616 6058** brown@ess.washington.edu
- **TA: Jon Toner**
- **Web page: courses.washington.edu/ESS210**
  - **Syllabus**
  - **Schedule**
  - **Grading policy**
  - **PowerPoints**
  - **Podcasts**
  - **General information**
  - **Exam results**

- Textbook: *Dynamic Earth: An Introduction to Physical Geology*, Fifth Edition by Skinner et al.
- Course Content: The lectures cover a range of topics in physical geology. This course may not be taken for credit by anyone who has completed ESS 101, and vice versa.
- Laboratory: The laboratory sessions are essential to the course, they present opportunities to examine, characterize, and gain insight into geological materials, landforms, and processes.
- Fieldtrip: Two optional field trips are planned for this quarter (one half day trip on a Thursday and one full day weekend trip (date to be determined)). You are welcome to come along either for the sheer, unfettered joy of field geology or in order to complete a trip exercise for extra credit.

- *Readings: Assignments listed with schedule, we will cover 20 chapters (500 pages). KEEP UP on reading.*

- **I believe strongly in providing reasonable accommodations for students with documented disabilities on an individual and flexible basis.**

Planet Earth: Your "space ship" for life

- This course is an "occupants' manual" providing a one-quarter background in Earth history, processes, and structure.
- You will be able to describe and identify the most common rocks and minerals. Furthermore, you will gain knowledge of
  - the origin and actions of major earth processes including plate tectonics, volcanism, glaciation, weathering, and sedimentation
  - the variability, complexity, and interdependency of Earth systems
  - how analysis of the present permits inferences about past and future behavior and consequences.
  - how we modify and are impacted by geologic processes including erosion, floods, groundwater, and earthquakes.

Pre-Test

1. Science is done following the steps of the scientific method
2. Earth's mantle is liquid, thus is the source of molten rock for volcanoes
3. Earth's core is hollow
4. Oceans on Earth formed following the breakup of the ancient super continent Pangea
5. No significant plate tectonic motion has occurred during the last few thousand years.
6. Continental shelves extend out from the continents and can break off to cause tsunamis
7. Apart from differences due to the change in polar ice volume, sea level has stayed relatively constant through time
8. Earthquakes are rare events on Earth
9. The biggest earthquake is magnitude 10.
10. Earth's magnetic field is caused by a permanent magnet in earth's core
11. Rivers and streams are simply flowing water
12. Groundwater is largely water from earlier periods in Earth's history
13. Lakes and rivers contain more freshwater than groundwater systems do
14. The poles have always had ice caps.
15. Summer is warmer because we are closer to Sun during those months

How BIG is Earth?

- **In small groups, come up with an estimate of Earth's diameter**
  - **Use any approach you wish**
    - **Authority argument**
    - **Guestimation based on any measure of distance you want to use.**