

**FALL SEMESTER (12 classes)**

- **What is Earth Science?** Six Spheres of the Earth.
- **Earth's Place in the Universe:** Milky Way Galaxy. Solar System. The Sun. The Moon. Search for Earth-like exoplanets in the Universe.
- **Planet Earth:** orbit, axis, tilt; poles; equator, tropics, polar circles; day and night; seasons; solstices and equinoxes.
- **Cartography:** The Globe and coordinates; projections; types of maps.
- **Earth's Remarkable (Sur)Face:** natural wonders of the World.
- **Internal structure of the Earth:** core, mantle, crust; Earth's composition.
- **Lithosphere:** tectonic plates, continental drift, types of plate boundaries; geologic processes; landscape formation.
- **Volcano:** parts, types; distribution around the world; eruption; volcanic landforms; hot spot volcanism.

**SPRING SEMESTER (18 classes)**

- **Earthquakes:** magnitude, distribution; seismic waves, seismogram; earthquake prediction; greatest earthquakes; earthquake hazards, tsunami.
- **Hydrosphere:** hydrologic cycle; fresh water (rivers, streams, lakes, wetlands); groundwater (aquifers); saltwater (seas, waves, tides).
- **Cryosphere:** frozen water (glaciers, permafrost, icebergs); Ice Age.
- **The World Ocean:** ocean floor, depth, temperature, salinity; currents, global ocean circulation (conveyor belt, overturning); Gulf Stream.
- **Atmosphere:** layers, temperature, air pressure and density; atmospheric gases; evolution of the Earth's atmosphere; other atmospheres.
- **What is weather?** Air masses and atmospheric fronts; wind (wind rose, global and local winds, jet stream); clouds (formation, floating condition); precipitation; weather forecast; severe weather (thunderstorm, tropical cyclones, winter storms).
- **Tornado:** formation, classification, damage; historical examples.
- **Hurricane:** origin, structure, path, classification; storm surge; greatest hurricanes.
- **Magnetosphere:** Earth's magnetic field; magnetic poles; solar wind; Aurora Borealis (Northern Lights).