FOSS Chemical Interactions Course
Glossary
2007 Edition

Alchemy: The prescientific investigation of substances, including the search for ways to change common metals into gold.

Atmosphere: The layer of gases surrounding a planet.

Atom: The smallest particle of an element.

Atomic number: The number assigned to an element, based on the number of protons in the nucleus of its atom.

Average kinetic energy: Temperature.

Blood plasma: The clear, amber solution that is the liquid portion of blood.

Bond: An attractive force acting between atoms.

Calibrated: Divided into units that correspond to a standard.

Calorie: The unit of energy that will raise the temperature of 1 gram of water 1 degree Celsius.

Carbohydrate: A group of carbon-based nutrients, including sugars and starches.

Carbon dioxide gas: A compound made from carbon and oxygen; CO₂.

Chemical equation: A representation of a chemical reaction using chemical formulas.

Chemical formula: A code that represents the number and kinds of atoms in one particle of a substance.

Chemical property: A characteristic of a substance that determines how it interacts with other substances.

Chemical reaction: A process during which starting substances (reactants) change into new substances (products) with different arrangements of atoms.

Combustion: A chemical reaction, commonly called burning.

Compound: A substance whose particle is made of two or more different kinds of atoms.

Compressed: Reduced in volume as a result of applied pressure.

Concentrated: A solution with a large amount of solute dissolved in a small amount of solvent.

Concentration: The amount of solute dissolved in a measure of solvent.

Condensation: The change of phase from gas to liquid.
**Conduction**: The transfer of energy (heat) from one particle to another as a result of contact.

**Conserved**: Unchanged.

**Contraction**: The reduction of volume of a sample of matter as a result of cooling.

**Crust**: Earth's hard outer layer of solid rock.

**Cyclotron**: An instrument used to create new elements.

**Density**: The ratio of mass and volume in a sample of matter.

**Deposit**: The change of phase from gas directly to solid.

**Dilute**: A solution with a small amount of solute dissolved in a large amount of solvent.

**Dissolve**: To incorporate one substance uniformly into another substance at the particle level.

**Dry ice**: The solid phase of carbon dioxide.

**Electron**: A subatomic particle with a negative charge.

**Element**: A fundamental substance that cannot be broken into simpler substances by chemical or physical processes.

**Energy transfer**: The movement of energy from one location to another.

**Equilibrium**: A condition in which a system is experiencing no net change.

**Evaporation**: The change of phase from liquid to gas.

**Expansion**: An increase of volume.

**Force**: A push or a pull.

**Freeze**: To change phase from liquid to solid.

**Fundamental**: Simple and basic.

**Gas**: A phase of matter that has no definite shape or volume. Particles of gas fly independently through space.

**Gaseous**: Existing in the gas phase.

**Global warming**: The increase of average temperature worldwide.

**Heat of fusion**: Heat that causes the solid/liquid phase change without changing the temperature of the substance.

**Herbicide**: A plant poison.
**Hydrocarbon**: A group of carbon-based substances made of carbon and hydrogen only.

**Insoluble**: Not capable of being dissolved. Sand is insoluble in water.

**Kinetic energy**: Energy of motion.

**Lava**: Molten rock flowing on Earth's surface.

**Lipid**: A group of organic substances that includes oils and fats.

**Liquid**: A phase of matter that has definite volume but no definite shape. Particles of liquid are loosely bonded, but can flow over and around one another.

**Mantle**: The large rocky part of planet Earth, located between the core and the crust.

**Mass**: A measure of the quantity of matter.

**Matter**: Anything that has mass and takes up space.

**Melt**: To change phase from solid to liquid.

**Metal**: A group of elements that stretch, bend, and conduct heat and electricity.

**Mixture**: Two or more substances together.

**Molecule**: A particle made of two or more atoms that are held together with strong (covalent) bonds.

**Neutron**: A subatomic particle with no charge.

**Nitrogen**: A colorless, odorless, gaseous element that makes up about 78% of Earth's atmosphere.

**Noble gas**: A gaseous element that does not react with other elements.

**Nucleus**: The center of an atom, composed of protons and neutrons.

**Octane**: An eight-carbon molecule. Octane is one of the main ingredients in gasoline.

**Organic compound**: A large class of substances produced by organisms.

**Particle**: The smallest piece of a substance that is still that substance.

**Periodic table of the elements**: A way to organize the elements based on atomic number and chemical property.

**Phase**: The physical appearance of a sample of matter based on the kinetic energy of its particles. Common phases include solid, liquid, and gas.

**Phloem**: A plant tissue that transports nutrients to all parts of the plant.

**Physical property**: A characteristic of a substance that can be observed without changing it chemically, such as size, shape, density, and phase.
Potash: An impure form of potassium carbonate.

Precipitate: An insoluble product of a reaction.

Predict: To make an accurate estimation of a future event based on knowledge.

Product: A substance produced in a chemical reaction.

Protein: A group of nitrogen-containing organic substances.

Proton: A subatomic particle that has a positive charge.

Radiation: A form of energy that travels through space.

Radioactivity: Radiation given off by the elements.

Ratio: The relationship between two numbers.

Reactant: A starting substance in a chemical reaction.

Room temperature: The average kinetic energy of the particles in the air and other objects in a room.

Salt: The product that forms when a metal reacts with an acid.

Saturated: A solution with the maximum amount of dissolved solute.

Scanning tunneling microscope (STM): An instrument that can create images of arrays of atoms.

Solid: A phase of matter that has definite volume and definite shape. The particles of a solid are tightly bonded and cannot move around.

Soluble: Capable of being dissolved. Table salt is soluble in water.

Solute: A substance that dissolves in a solvent to form a solution.

Solution: A mixture formed when one substance dissolves in another.

Solvent: A substance in which a solute dissolves to form a solution.

Sublime: To change phase from solid to gas.

Substance: A type of matter defined by a unique particle.

Transparent: Matter through which an image can be seen clearly.

Vibrating: Moving rapidly back and forth.

Volume: A defined quantity of space.

Water vapor: The gas phase of water.
**Well-ordered array:** A repeating pattern.

**Xylem:** A plant tissue that transports water and minerals to all parts of the plant.