Terminology, week 1

Term	Explanation
5-carbon sugar	A sugar with 5 carbon atoms
6-carbon sugar	A sugar with 6 carbon atoms (e.g. Glucose)
Agave	Plant native to the Southern United States of America and trpical America
Anammox	Anoxic Ammonia Oxidation. A process carried out by microorganisms that is a.o. used to remove ammonium from wastewater. The following reaction is catalyzed: NH4+ + NO2- => N2 + 2H20
Aquaculture	The farming of auqatic animals and/or plants for food and other products
Arable	(Land) suited for growing grops
Bacteria	Large group of unicellular microorganisms that have cell walls but lack organelles and an organized nucleus
Biobased products	Products which are composed for the major part of elements (carbon, oxygen, hydrogen) that stem from biomass
Biochemical composition	Main molecules comprising a certain compound
Biodegradable	A compound that can be broken down by microorganisms
Biodiversity	The variety of life in the world or in a particular habitat or ecosystem
Bioeconomy	A biobased economy instead of an economy based on fossil fuels (see biobased)
Biomass	Mass of biological material
Bioplastic	Plastic made from biologically produced compounds (rather than from petroleum)
Biotechnology	The use of biological systems to develop or make a valuable product
Broth	The mixture in which industrial fermentation are carried out
CAPEX	Capital Expenditures (see Capital Investment)
Capital investment	Money used to acquire fixed assets
Carbon	A chemical element that a.o. forms the physical basis of all life
Carbon cycle	Biogeochemical cycle by which carbon is exchanged among the biosphere, pedos
Catalyst	A substance that increases the rate of a chemical reaction without itself undergoing any permanent chemical change
Classical biotechnology	Processes that are based on the inherent capability of microorganisms to make a product (e.g. brewing, cheese)
Crude oil refinery	Industrial installation where crude oil is broken down into intermediate chemicals
Distillation	The action of purifying a liquid by a process of heating and cooling
EC	European Commission
Elephant grass	A tall tropical African grass (also called Napier grass)
Environmental footprint	The impact of a process on the environment (e.g. In terms of water use, greenhouse gas emission, social effects etc.)
Enzyme	A protein that acts as a catalyst for a specific (bio)chemical reaction
Eukaryote	A unicellular or multicellular organism whose DNA is stored in the form of chromosomes contained within a distinct nucleus
Feedstock	Raw material to supply or fuel an industrial process

Fermentation	The bulk growth of microorganisms on a growth medium. Fermentation is also used more specifically to refer to the catabolism of an organic compound by microorganisms where the compound serves as both the electron donor and the electron acceptor, and in which ATP is usually produced by substrate-level phosphorylation
First generation biomass	Biomass from the nutritional parts of plants
Fossil fuel	A natural fuel derived from biological material (organic molecules) that accumulated in the subsurface in the very distant past, and under high pressure has been converted to solid, liquid or gaseous substances with a high energy density
Fungi	Large group of spore producing organisms feeding on organic matter
Gasification	Conversion of a solid or liquid into gas
Genetically modified organism (GMO)	An organism whose genome has been artificially altered using in vitro genetic engineering techniques
Glucose	A sugar with 6 carbon atoms. It is an important energy source for many living organisms
Greenhouse gas	A gas that traps heat between the atmosphere and the earth surface, thereby contributing to the greenhouse effect (e.g. CO2)
Hemicellulose	Any of a class of substances that occur as constituents of the cell walls of plants and are polysaccharides of simpler structure than cellulose
Hydrolysis	The chemical cleavage of a compound in reaction with water
Hydroxyl group	The -OH group linked to the carbon backbone of an organic molecule
Insulin	A hormone produced in the pancreas that regulated the amount of glucose in the blood
Internal rate of return	The interest rate at which the net present value of costs of the inestment equals the net present value of the benefits of the investment
IPCC	International Panel on Climate Change
Jatropha	A genus of plants, one species of which (Jatropha curcas) produces seeds that are used in the production of biodiesel
Life cycle assessment	A technique to asses the environmental aspects and potential impacts associated with a produt, process or service
Lignin	A complex organic polymer in the cell walls of many plants, making them rigid and woody
Lignocellulose	A complex of lignin, cellulose and hemicellulose present in the cell walls of woody plants
Marginal soil	Soil that has little potential for profitable agricultural use
Microbiology	The branch of science that researches microorganisms
Microorganism	A microscopic (unicellular or multicellular) organism
Net present value	The value in the present of a sum of money, in contrast to some future value it will have when it has been invested at compound interest
OPEX	Operational Expenditures
Organic molecule	A molecule containing carbon
Overview effect	Term coined by Frank White for the psychological impact that seeing the earth from outer space had (and has) on astronauts and society at large

Oxfam	An international confederation of 17 organizations acting to lift people out of poverty
Pay-back time	Time required for earning back the initial investment required
PDO	1,3-Propanediol
PET	Polyethylene terephthalate
Phyllotaxis	The arrangement of leaves on an axis or stem
Platform chemical	Molecule that can serve as the basis for a multitude of different industrial products
Polycondensation	Reaction of multiple molecules that link to eachother, releasing H_2O molecules, and forming a polymer
Pretreatment	The treatment of biomass in order to make fermentable sugars accessible to microorganisms
Prokaryote	Single-celled organism that has neither a distinct nucleus with a membrane nor other specialized organelles (e.g. Bacteria, Archaea)
Propylene	A gaseous alkene hydrocarbon, produced by cracking alkanes
PTT	Polytrimethylene terephthalate. A synthetic polyester.
Pyrolysis	Decomposition due to high temperatures
Second generation biomass	Biomass from the woody parts of plants
Solvent	Able to dissolve other substances
Sustainable development	Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs
Switchgrass	A tall North American grass that forms large clumps
Syn-gas	Synthesis gas. A mixture of Carbon monooxide, Hydrogen, and Carbon Dioxide
Third generation biomass	Third generation biobased products are based on improvements in the production of biomass. It takes advantage of dedicated streams such as aquatic biomass.
Toxicity	Degree of poisonous effect
UN WCSD	United Nations World Commission on Sustainable Development
US EIA	United States Energy Information Administration