Organic Chemistry 

Organic chemistry is the chemistry of the compounds of carbon.

(Allotropic forms of carbon: diamond, graphite, fullerenes.)

Inorganic Chemistry:

The chemistry of the other ~100 elements.

Historical reason for division:

The sources of chemicals for early chemical investigations (last quarter of 18th and first quarter of 19th centuries) were: animal, vegetable, mineral.

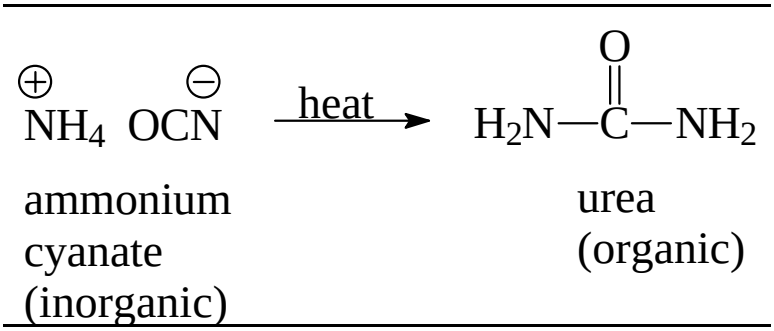
Organic chemicals, those from living organisms (animal, vegetable) were complex and contained C, H, and often N and/or O.

Inorganic chemicals (mineral) were simpler, could contain a variety of elements, but only rarely carbon, except for carbonates.

It seemed that inorganic sources of carbon (carbonate, cyanide, carbon dioxide, etc.) could not be converted into organic compounds. This lead to the *vital force theory*.

Vital Force Theory: only living organisms can convert carbon containing inorganic compounds to organic compounds.

Friedrich Wöhler, 1828 ---



Letter from Wöhler to Berzelius: "I must tell you that I can prepare urea without requiring a kidney or an animal ..."

Letter from Wöhler to Berzelius (1835):
"Organic chemistry just now is enough to drive one mad. It gives me an impression of a primeval tropical forest, full of the most remarkable things, a monstrous and boundless thicket, with no way to escape, into which one may well dread to enter."

By 1850, general agreement that organic chemistry is the study of the compounds of carbon.
Contemporary reason for division:

Convenience of study ---
~20 million known compounds; over 90% contain C.

(Fortunately, there are classes of organic compounds, each of which is characterized by a "functional group".)

Why so many organic compounds?

C has the almost unique ability to join to itself, as well as some "hetero" atoms (*eg* O, N, S) to form long chains. Si, also, can do this, but usually does not, and other atoms (*eg* O, N, S) apparently cannot.