**Glossary Terms from Pace et al.**

Adaptive traits - Characteristics that improve an individual's survival and fitness.

Analogous - Performing a similar function but having a different evolutionary origin, such as the wings of insects and birds.

Anoxic - relating to or marked by a severe deficiency of oxygen in tissues or organs.

Archaebacteria - Microorganisms that are similar to bacteria in size and simplicity of structure but radically different in molecular organization. They are now believed to constitute an ancient intermediate group between the bacteria and eukaryotes.

Comparative morphology - The study of similarities and differences in the anatomy of organisms. It is closely related to evolutionary biology and phylogeny (the evolution of species).

Cytochrome C - A molecule released by the mitochondria in response to membrane aggravation. It plays a role in initiating a cascade of events leading to apoptosis. Within the mitochondria, it transfers electrons from Complex III to Complex IV in the electron transport chain.

Deep history - a term for the distant past of the human species.

Deep time - Deep time is the concept that the Geologic time scale is vast because the Earth is very old. The modern philosophical concept was developed in the 18th century by Scottish geologist James Hutton (1726–1797).

Electrophoresis - The movement of charged particles in a fluid or gel under the influence of an electric field.

Embryology - The branch of biology and medicine concerned with the study of embryos and their development.

Enzymology - The branch of biochemistry concerned with enzymes.

Evolutionary biology - A sub-field of biology concerned with the origin of species from a common descent and descent of species, as well as their change, multiplication and diversity over time.
Fibrinopeptide - peptide released from the amino end of fibrinogen by the action of thrombin to form fibrin during clotting of the blood

Genetic code - The nucleotide triplets of DNA and RNA molecules that carry genetic information in living cells

Halophile - An organism, esp. a microorganism, that grows in or can tolerate saline conditions

Homologous - Having the same relation, relative position, or structure, in particular

Horizontal Gene Transfer (HGT) - Transmission of DNA between species, involving close contact between the donor's DNA and the recipient, uptake of DNA by the recipient, and stable incorporation of the DNA into the recipient's genome.

Lipid - Any of a class of organic compounds that are fatty acids or their derivatives and are insoluble in water but soluble in organic solvents. They include many natural oils, waxes, and steroids

Macromolecular sequences – Amino-acid, DNA, or RNA sequences

Methanogen - A methane-producing bacterium

Microflora - Microscopic plants

Molecular phylogenetics - Molecular phylogenetics is the analysis of hereditary molecular differences, mainly in DNA sequences, to gain information on an organism's evolutionary relationships. The result of a molecular phylogenetic analysis is expressed in a phylogenetic tree.

Monera - prokaryotic bacteria and blue-green algae and various primitive pathogens; because of lack of consensus on how to divide the organisms into phyla informal names are used for the major divisions.

Nucleotide (nt) - A compound consisting of a nucleoside linked to a phosphate group. Nucleotides form the basic structural unit of nucleic acids such as DNA and RNA. They include guanine, adenine, cytosine, uracil (RNA), and thymine (DNA).

Oligonucleotide - Small single-stranded segments of DNA typically 20-30 nucleotide bases in size which are synthesized in vitro.
Ontogeny - The branch of biology that deals with the development of an individual organism or anatomical or behavioral feature from the earliest stage to maturity.

Paralog - either of a pair of genes that derive from the same ancestral gene.

Pathogenicity - the ability of a pathogen to produce an infectious disease in an organism.

PCR - The polymerase chain reaction (PCR) is a scientific technique in molecular biology to amplify a single or a few copies of a piece of DNA across several orders of magnitude, generating thousands to millions of copies of a particular DNA sequence.

Phylogenetic - In biology, phylogenetics is the study of evolutionary relatedness among groups of organisms (e.g. species, populations), which is discovered through molecular sequencing data and morphological data matrices.

Prebiotic - Existing or occurring before the emergence of life.

Prokaryotes - The prokaryotes are a group of organisms that lack a cell nucleus or any other membrane-bound organelles.

Recombinant DNA - DNA that has been formed artificially by combining constituents from different organisms.

Ribonuclease - a transferase that catalyzes the hydrolysis of ribonucleic acid.

RNA bases (GUAC)

RNA fingerprinting - A technique used to assist in the identification of individuals or species by their respective RNA profiles. This technique is more widely used with DNA.

rRNA - Ribosomal RNA; forms a component of the ribosome.

Sigma factors - A protein needed only for initiation of RNA synthesis. It is a bacterial transcription initiation factor that enables specific binding of RNA polymerase to gene promoters.

TATA box - A DNA sequence (cis-regulatory element) found in the promoter region of genes in archaea and eukaryotes.

Thermoacidophile - archaeabacteria that thrive in strongly acidic environments at high temperatures.
tRNA - Transfer RNA, which is implicated in the process translating mRNA into proteins. tRNA carry individual amino acids and deliver them to the ribosome in the process of translation.

Urkingsdom - A conceptual ‘superkingdom’ lying at the root of the divergence between primitive organisms and bacteria from plants and animals, in which the mother organism, recently graduated from the primordial ooze, had a minimal complement of ‘ur’ genes essential for all organisms, including those genes encoding ribosomal RNA, ribosomal protein, enzymes and proteins required for DNA replication, DNA transcription and RNA translation.