 What is a genome/DNA and why is it important to know?

A genome is the complete set of genetic information in an organism. It provides all the information an organism needs to function. DNA is a complex molecule that contains all the information needed to build and maintain an organism. They are important because understanding their function can provide important insights into how our bodies work and what happens when we get sick.

 Does CS have a significant role to play in studying why we are tall, organized, athletic, or healthy?

Yes, because key biological models come straight from computer science: circuits and networks of molecular interactions, trees of evolution and lineages, strings of DNA, RNA, and proteins. Due to sequencers and microarrays, research bottlenecks increasingly depend on computational issues: speed, scalability, energy, cost.

 What are some of the important questions in biology and medicine that can be addressed with computer science?

The tools of mathematics and computer science—especially graph theory—can be used to study protein-protein interaction networks. These networks describe a complex domino effect of interactions that occur when protein molecules physically come into contact with each other. This enables the study of the complex behavior of cells in our bodies and can gain insight into how diseases develop and study treatments.

 Is it enough to study humans and the human genome?

No, we also need to study other existences’ genomes.

 Is the industry interested in computational biology, or is it largely academic research?

I think it's both, first start learning because you're interested in computational biology, and then use what you've learned to start academic research.

Resources:

<https://www.nature.com/scitable/definition/genome-43/#:~:text=A%20genome%20is%20the%20complete,molecules%20of%20DNA%20called%20chromosomes>.

<https://www.sciencedirect.com/topics/nursing-and-health-professions/genomic-dna>

<https://en.wikipedia.org/wiki/Computational_genomics#:~:text=Contributions%20of%20computational%20genomics%20research%20to%20biology%20include%3A,several%20mammalian%20and%20vertebrate%20species>

<https://www.cs.jhu.edu/~langmea/resources/lecture_notes/01_genomics_comp_genomics_v2.pdf>

<https://www.cs.princeton.edu/news/teaching-computers-how-solve-biologys-codes>

<https://cbd.cmu.edu/about-us/what-is-computational-biology.html>