Program Brochure

Take advantage of the **Boom** in bioinformatics jobs. 8% increase in Bioinformatics jobs till 2026. ~80% of them will be remote jobs.

Classroom

Gym

Become an expert in 3 steps

Innovation

Welcome

Dear Prospective Fellow,

On behalf of HackBio, I would like to thank you for your interest in becoming a fellow with us. At HackBio, we are on a mission to accelerate discovery of biotech talents through capacity building. The academy to which you seek a fellowship with is central to this mission. We also believe this mission is critical to discovering better, resilient and data-centric health innovations. We appreciate excellence in all aspects of our endeavour, and we are really looking for bright candidates to push to the centre stage where innovation is taking place. During your time with us, we can assure you that your ability to lead, communicate and innovate will be brought to the fore. Once again, on behalf of everyone at HackBio, I wish you a wonderful time with us, and a fulfilling career ahead of you.

Sincerely,

Samson Adegbe (CEO, HackBio)

About HackBio

HackBio is a virtual campus for enterprise level bioinformatics training. Originally started as an informal internship, HackBio has rapidly transformed into a pioneer provider of transformative biotech education. At HackBio, you are equipped with cutting-edge skills that position you for impact and career advancement in biotechnology, precision medicine and healthcare. Core specializations at HackBio include Drug Development, Genomics and Transcriptomics.

To this end, HackBio leverages individual motivation to transform each fellow into a sought-after Bioinformatics talent. Through intelligence, infrastructure and mentorship, we shape you for immediate and future relevance. To ensure continued relevance, training at HackBio is **Flexible**, **Career-Focused** and **Ecosystem-Based**.

We are excited by the bioinformatics boom and the huge opportunity it brings, we know what it takes, and it is our honor to show you.

Become a Fellow
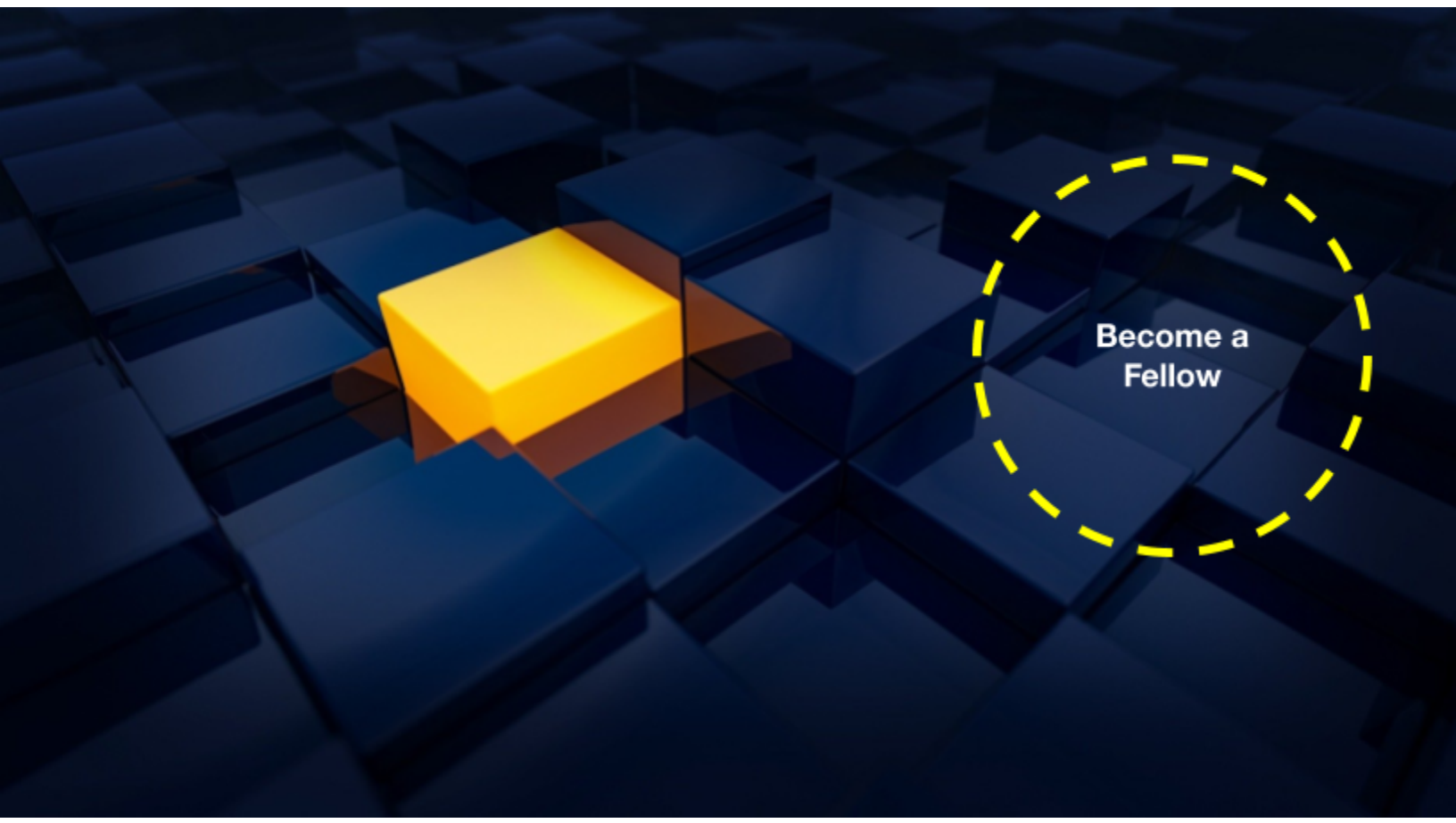
Our Academic Plan

Become an expert in 3 easy steps

1. Classroom

2. Gym

3. Innovation

Plan: Study at the HackBio Institute is completely virtual, i.e., you can earn a certificate at the comfort of your home or office. Learning is task based and centred around developing solutions. Sometimes you imitate, sometimes you build something entirely new. The entire study is divided into 3 academic phases: **Classroom**, **Gym** and **Innovation**. Each phase must be completed within one month.

- **Classroom**: Introduction to theoretical concepts and background to molecular biology and programming languages
- **Gym**: Paper practicals and seminars. Each student completely replicates the research performed in 4 peer reviewed articles and presents it at the end of two weeks.
- **Innovation**: Students are assigned to a PI and must complete translational research, based on partner company request or Supervisor's grant.

Timeline: Every student of HBI must complete each phase within one month. Learning time is estimated to be 150+ hours spread within 3 months.

Curriculum for the Classroom phase

The secret of any successful bioinformatician is a true understanding of biological concepts, and we have built our curriculum to provide you a deep understanding of biological concepts and problems and show you how mathematics and computers can be used to solve them.

- **Molecular and Cellular Biology**

  An open minded introduction to the central dogma of molecular biology as well as structural and functional aspects of the central dogma. Understand the principles of modern molecular biology methods such as DNA recombination, Polymerase Chain Reaction and DNA Sequencing. Emphasis will be placed on understanding the basic concepts and the integration of these concepts for problem solving

- **Computing for life scientists (Python, R & Linux)**

  Practice oriented introduction to the core programming languages in bioinformatics; Python and R, as well as the Linux/Unix computing environment in the context of solving biological/health problems and developing new solutions. The curriculum also provides a web/app development and data science and visualization primer which gives you an edge.

- **Statistics and Probability for life scientists**

  Elementary introduction to the core theories of statistics and probability and a quick advance into the practical applications in bioinformatics and computing. Topics include: basic probability models; combinatorics; random variables; discrete and continuous probability distributions; statistical estimation and testing; confidence intervals; and an introduction to linear regression.

- **Concept based analysis (as it applies to your specialization)**

  In depth background into the basic concepts of your chosen specialization and the problems around them. It takes off from your understanding of molecular biology and guides you on the use of biological data and computing to provide scalable solutions that grow into standard workflows and pipelines. This session involves a lot of basic practical sessions and personal development projects. It comes 2 weeks into the main program and overflows into the **Gym Phase (Stage 2)**

Core Specializations

HackBio provides three core specialization programs; **Genomics, Transcriptomics** and **Drug Discovery.**

Genomics is the study of the entire genome (DNA) of an organism. Today, genomics is the backbone of precision medicine. Pharmaceutical and healthcare companies, either big or small, now utilize the power of bioinformatics to analyze big genomic data in order to provide better healthcare products. The growth of this field has created new job descriptions such as genomic data scientists, health data analysts, bioinformatics developers, and many more. You'll master the skills necessary to become a successful Data Scientist. You'll work on projects designed by industry experts, and learn to build and run data pipelines, design experiments, build recommendation systems, and deploy solutions to the cloud.

Minimum Salary: $52,000/Annum*

Transcriptomics is the study of all genomic products (RNA) of an organism. In this course, we link this to epigenetics to provide a more comprehensive and in-depth specialization. Modern diagnostic and vaccine companies are shifting from the traditional immune based diagnosis to the using the RNA which is more sensitive and specific. This specialization is appropriate for prospective research associates, senior scientists and stem cell engineers. In this course, experts will guide you through the use, application and deployment of transcriptomic data for biomedical research, clinical research and healthcare product development.

Minimum Salary: $32,000/Annum*

Drug Discovery entails all the processes of developing a new pharmaceutical drug to the market. Modern pharmaceutical companies and laboratories rely on a range of bioinformatics capabilities to reduce the initial cost of validating a drug for pre-clinical and clinical trials. Our specialization program offers you unique capability to develop novel pharmaceutical candidates in the form of small molecules, biosimilars and protein fragments, as well as how to forecast future drug toxicity issues *in-silico*. With expert guidance, you also have access to a wide array of drug development software products and databases to kickstart your career as a drug developer.

Minimum Salary: $52,000/Annum*

***Based on 2020 average on Glassdoor**

Infrastructure

HackBio prides itself in its exceptional ability to provide infrastructure and digital power to all its fellows. While we always look out for the latest technologies in order to place our fellows on the edge of biocomputing, here are some of the exclusive resources you have access to when you join us:

- Biocomputing cluster (50 nodes with GPUs, 3.2 GHz)
- 200+ Industry and gold-standard standard bioinformatics softwares
- HB-BioData Bank (10TB). Summary statistics to over 50 scientific works (You can play with this anytime)
- E-library Services
- Career Services (Research and Industry: Once a month)
- Mentorship
- Women in STEM connect
- Studio recording facilities for science communication

How it works

Cost and Schedule: The course cost is paid upfront. You can decide to pay a one-off total sum of $300 once or installmentally as $100 for 3 months. It is fully online, and our program design allows you to study anywhere and anytime you want.

Enrollment: Once your application is accepted, we'll send you a custom link to pay and enroll. We have classes starting every month, and you can save a spot for a future cohort.

Mentor-matching process: Once you enroll, you'll be asked to fill out a profile in which you'll write a short bio about yourself, your availability during the week, and the skills you want to develop. Your student advisor will use this information to match you with a mentor who suits your specific needs.

Classroom starts: The classroom builds on your previous knowledge. Minimally, you will go through 50+ hours of virtual teaching sessions as well as 10+ hours of basic practice in computer science and programming. It lasts for a month.

Gym starts: The Gym is a 100+ hour of bioinformatics self-practice, personal development, resource sharing, interaction and presentations. Mentors engage you weekly to provide technical assistance when necessary. It also lasts for a month.

First Career session: This is usually a practical webinar on getting your first job/contract/gig in bioinformatics.

Innovation starts: At this stage, you work closely with a research mentor, principal investigator or startup in your chosen field. By the end of this session, a publication-worthy research must have been carried out.

Second Career session: This is a mock interview with an unknown external recruiter.

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