**PG Program in Biotechnology and Bioinformatics: Course Outline**

**Year 1**

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| **Semester I** | **Semester II** |
| Cell and molecular biology | Linux OS and programming |
| Techniques in Cell and molecular biology | Introduction to biological Data and databases |
| Microbiology and immunology | Genetics |
| Techniques in Microbiology and immunology | Bioinformatics |
| Essential mathematics and statistics | Biochemistry and structural biology |
| University core | Biochemistry |
|  | University core |
|  | Open Elective-1 |

**Year 2**

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| **Semester III** | **Semester IV** |
| Biostatistics and R programming |  Major Research Project |
| Programming in Python |
| Advanced Bioinformatics |
| Fermentation and downstream processing |
| Synthetic biology and genetic engineering |
| Introduction to AI/ML and their applications in biology |
| Open Elective-2 |
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**Putative Open electives:**

1. Bio-entrepreneurship
2. Biomedical device engineering
3. Nanomedicine
4. Biosafety, ethics and IPR
5. Forensic Law and Science
6. Bioprospecting
7. Big data analysis in Biology and Neural Networks