

Bioinformatics/Computational biology/Data Science

Potential Careers (includes, but not limited to):

- Academic Independent research: Running an independent research program at a University. Requires a PhD in Biology or related field, with significant training in Bioinformatics/Computational Biology. Lab may specialize in computational biology or use it as a tool to support wet-lab studies.
- Research Assistant: Working within a laboratory for independent researcher(s), using computational skills to help solve biological problems. MS would be helpful, but not required.
- Research support staff: Working in an institutional support facility, helping researchers to find computational solutions to their problems. MS or PhD would be helpful, but not required, depending on the position.
- Software developer – No formal education required.
- Healthcare informatics: Working for a hospital or healthcare system to gather data and analyze it, often supporting health care missions to promote best practices. E.g. a surgical team would like to present data that their procedure is superior to others. They ask you to gather data from surveys and medical records on the outcomes (mortality, infection rates, recovery time, patient satisfaction, ect), analyze it and summarize the outcome.
- Each of these careers may be regular salary/hourly employment or contract employment where you are hired to perform a specific task for a fee.
- Genetic Counseling – M.S. Required

Examples of Grad programs (not a complete list)

- IUPUI – 1 yr MS program in applied data science or Health informatics. Offer “Bootcamp” (extra semester of training in computational aspects). Also offer multiple online courses in computer coding.
- NYU – MS is Biomedical Informatics

Training for CMB students:

- B.S. Cell and Molecular Biology
- Additional courses (potential certificate?):
 - Calculus 2 and 3- MTH280, MTH287
 - Computer coding (may be informal or formal) – i.e CSC 125 Introduction to C++ Programming
- Statistics (At least one of the following options. Underlined courses are preferred.)
 - MTH 345 Statistics for Scientists or MTH545 Applied Statistics
 - BIO550
 - PSY 200 Psych Stats
 - AGR 330 Stats in Agriculture
 - QBA 237 Quantitative Business Stats
 - SOC 302
 - PBH 730
- Similar MSU programs
 - Psych – Statistics and Research Design Graduate certificate. (not computational, but more stats and directed research.)
 - Comp Sci –
 - Web programming certificate
 - Informatics minor: [CSC 131](#)(4), [232](#)(4), [335](#)(3), [587](#)(3); Same math and stats as suggested above. [MTH 261](#)(5) or [MTH 287](#)(3); [MTH 280](#)(5) or [MTH 288](#)(3); [BIO 550](#)(3) or [MTH 545](#)(3)