Bioinformatics bridges the gap between computer science and biological domains by applying library and information science concepts, tools, and techniques.
Recent years have shown a dramatic increase in the volume of biological data that is generated as a result of new technologies and innovations in the field. Scholarly publications continue to grow rapidly as well. Both of these trends have the potential to accelerate discoveries in the life sciences. However, biological scientists often lack the technical knowledge and expertise required to maintain and analyze these large data sets. In contrast, computer scientists often lack the biological knowledge necessary to fully develop technical solutions. Additionally, neither group usually has training or experience in information management. Bioinformatics bridges the gap between computer science and biological domains by applying library and information science concepts, tools, and techniques.

Separate from the GSLIS master’s program, the master’s degree in bioinformatics is an interdisciplinary program that incorporates a broad range of fields. It is part of the campus-wide bioinformatics program, which exists as a unique partnership among several academic units.

Students take courses in several departments, learning from faculty who are international experts in many areas of information management including bioinformatics, biology, chemistry, statistics, and computer science. This breadth of training provides multidisciplinary skills for a career in developing and managing information systems for the biological community, with opportunities to consider a broad spectrum of domains including molecular biology, environmental ecology, and biomedicine.

The program provides applied skills in building and evaluating systems that mediate effectively between users and collections. Areas of emphasis at GSLIS include information organization and access, information retrieval, knowledge representation, user evaluation, data curation, systems analysis and design, policy standards, and socio-technical data analytics.

**Coursework**

The program requires a total of 36 credit hours, either with 36 hours of coursework (core and elective) or 28 hours of coursework plus 8 hours of thesis work. At least 12 hours must be completed with 500-level graduate courses. Students are allowed up to 4 hours of independent study as elective credit with approval from their advisor. This program cannot be completed through the online LEEP program.

**GSLIS faculty working in bioinformatics**

- **Catherine Blake, associate professor** (PhD UC Irvine)
- **Les Gasser, professor** (PhD UC Irvine)
- **Allen Renear, professor** (PhD Brown)
- **Vetle Torvik, assistant professor** (PhD Louisiana State University)

**Resources**

Campus resources available to students who join this program include:

- University of Illinois research centers, such as the Center for Biophysics and Computational Biology and the NIH Resource for Macromolecular Modeling and Bioinformatics
- Experimental bioinformatics facilities, including those located in the Keck Center for Comparative and Functional Genomics and the Institute for Genomic Biology
- The National Center for Supercomputing Applications (NCSA), which offers opportunities for accessing, developing, and experimenting with state-of-the-art computational facilities for bioinformatics
- Coursework in other academic units

**Careers**

Students tailor their programs to their specific interests and career paths. In general, graduates have the opportunity to consider a broad spectrum of fields in which to pursue their careers. Examples include molecular biology, environmental ecology, and biomedicine, in a variety of roles within academia, industry, and government agencies.