

# Doctor of Philosophy in Computational Biology

## Computational Biology Graduate Program

Computational biology is an interdisciplinary science at the interface of biology, chemistry, medicine, mathematics, and computer science. Its goal is development and application of computational approaches to studies of life processes and improvement of human health. The Computational Biology Graduate Program recruits students with bachelor's or master's degrees who made a choice to pursue a career in computational biology. The Ph.D. degree in Computational Biology requires successful completion of formal courses and demonstration of accomplishments in basic research, qualifying examinations, scientific writing, and formal presentations of research data.

## Admission to Graduate Studies

### Admission Requirements

- All applicants must meet the requirements outlined in the Admission to Graduate Study (<https://policy.ku.edu/graduate-studies/admission-to-graduate-study/>) policy.
- Bachelor's degree: A copy of official transcripts showing proof of a bachelor's degree (and any post-bachelor's coursework or degrees) from a regionally accredited institution, or a foreign university with equivalent bachelor's degree requirements is required.
- English proficiency: Proof of English proficiency (<https://gradapply.ku.edu/english-requirements/>) for non-native or non-native-like English speakers is required. There are two bands of English proficiency, including Admission and Full proficiency. For applicants to online programs, Full proficiency is required.

## Ph.D. Admission

### Admission Requirements

Applicants must have a bachelor's or master's degree in natural sciences, mathematics, engineering, or another relevant field. Applications are accepted online (<https://gradapply.ku.edu/apply/>).

## Non-Degree Seeking Admission

Students who are interested in enrolling in graduate level coursework in the Department of Computational Biology without formal admission to a graduate program at KU are encouraged to apply for graduate non-degree seeking student status. See the department's admission webpage (<http://compbio.ku.edu/apply-0/>) for further details.

## Required Course Work

Code	Title	Hours
BINF 701	Computational Biology I	5
BINF 702	Computational Biology II	5
BINF 709	Topics in: _____	3
BIOL 636	Biochemistry I	4
BIOL 638	Biochemistry II	4
Elective courses in biology/chemistry		6

Elective courses in analysis/mathematics/statistics	6
<b>Total Hours</b>	<b>33</b>

## Continuous Seminar Participation

All students in the PhD are required attend the weekly Computational Biology seminar series and participate in the Computational Biology student seminar series.

## Research Skills & Responsible Scholarship

The University requires that every doctoral student receive training in responsible scholarship pertinent to the field of research and obtain research skills pertinent to the doctoral level of research in their field(s). These requirements must be completed by the end of the semester that the student takes the oral comprehensive exam. For students in Computational Biology, this requirement is satisfied by completion of BINF 701 , BINF 702, collaborations in the Center for Computational Biology, and student research presentations.

## Oral Comprehensive Exam

By the end of the second year, the student should have completed all course work requirements for the degree. At that time, The student completes and submits a research proposal for the comprehensive oral examination. The proposal must develop a research topic related to the general areas of computational biology. The topic of the research proposal is decided upon by the student in consultation with the thesis advisor. Upon completion of the comprehensive oral examination, the student carries out research in the laboratory of the dissertation advisor.

## Post-Comprehensive Exam Enrollment

Starting the semester following successful completion of the oral comprehensive exam, students must enroll in accordance with the Office of Graduate Studies' Doctoral Candidacy Policy (<https://policy.ku.edu/graduate-studies/doctoral-candidacy/>). This enrollment includes, but is not limited to, at least 1 dissertation hour or approved dissertation hour equivalent every semester until graduation. See the Doctoral Candidacy policy for more information about this University level requirement.

## Dissertation Defense

The Ph.D. degree is awarded once the student has written a final dissertation and carried out a successful defense of it before a committee.

At the completion of this program, students will be able to:

- Obtain academic training in current knowledge in the field through coursework.
- Develop in-depth basic research ability in a particular research area through basic research, which would advance the knowledge in the field and allow the student to operate as an independent investigator in applied or basic research.
- Develop instructional skills through teaching undergraduate/graduate laboratories.
- Develop substantive writing ability through completion of a dissertation and manuscripts on the research performed.
- Obtain overall training which would (a) allow the student to obtain further training in a post-doctoral program; (b) qualify the student for an instructional/undergraduate research position in a four-year college or university academic unit which offers bachelors', master's, or PhD degrees; and/or (c) qualify the

student for a research-scientist or post-doctoral position in industry.