Nine credit hours are from the core areas of life science, statistics, math, and computer science. Student preference will guide the selection of a 3-credit hour elective course approved by the Program Committee.

**Admissions**

To enroll in the Graduate Certificate program, students are required to have a bachelor’s degree preferably in computer science, statistics, mathematics, life sciences or related fields. Students can participate in this certificate program while concurrently enrolled in an M.S. or Ph.D. degree program.

Admission forms can be obtained by following the prompt to the Bioinformatics Certificate as a degree choice at the web address listed below:

[https://app.it.okstate.edu/gradcollege/](https://app.it.okstate.edu/gradcollege/)

**Primary Student Learning Outcomes**

- **To** understand terminologies, technologies, and concepts used in the analysis of data related to genomes and genome structures.

- **To** acquire cross-disciplinary knowledge and independently design bioinformatics projects and organize collaborators of appropriate expertise across the core disciplines of life sciences, computer sciences, and statistics.

- **To** develop a set of skills including text mining/formatting, basic statistics, basic programming script, and use of genomic information and databases appropriate to their long-term employment.

More program information is available at:
[http://bioinformatics.okstate.edu/](http://bioinformatics.okstate.edu/)
Bioinformatics Mission Statement

The mission of the Bioinformatics Certificate Program is to train post-baccalaureate students in interdisciplinary techniques required to generate, analyze, and interpret complex biologically derived data sets. Departments from across the university participate. A cohesive curriculum provides essential training in bioinformatics and computational biology.

Correspondence:
Bioinformatics Certificate Program Committee
c/o Graduate Secretary
bioinformatics@okstate.edu
Dept. Biochemistry & Molecular Biology
246B Noble Research Center
Stillwater, OK 74078
Phone 405-744-9320
Fax 405-744-7799

Curriculum

*Online Courses

REQUIRED Foundation Courses (hours credit)
MICR 5203 Bioinformatics (3)
BIOC 5930 Bioinformatics Capstone Project (1)

SELECTED Interdisciplinary Courses

Life Sciences Core Courses
BIOC 6820 Bioinformatics Workshop (1-2)
BIOC 6820 Mass Spectrometry Workshop (1-2)
BIOC 6733 Functional Genomics (3)
BIOC 5102 Molecular Genetics (2)
BOT 5553 Molecular Phylogenetic Analysis
AnSci R. programming in animal sciences (1)
Bot 5110-365 Phylogenomics (1)
(Predicted for 2016)
BIOC “Basic bioinformatics” (3)
BIOC “Python for bioinformatics” (3)
MICR “Genome sequence annotation and analysis” (3)
Software-carpentry.org (Planned)

Statistics Core Courses
STAT 6013 Genetic Statistics (3)
STAT 5013 Stat Experimenters I (3)
STAT 5023 Stat Experimenters II (3)
STAT 5093 Statistical Computing (3)
STAT 4203 Math Statistics I (3)**
STAT 4213 Math Statistics II (3)**
** Must be for grad-level-credit

Computer Science Core Courses
CS 5423/5433 Principles of Database Systems/Distributed Database Systems (3)
CS 5070 Data Structures and Algorithms for Bioinformatics (3)
CS 4433 Intro to Database Systems (3)

Math Core Courses
MATH 6590 Appl. of Parallel Computing (1)
Software-carpentry.org (Planned)

Elective Courses (3)
Graduate-level course approved by the Bioinformatics Certificate Program Committee.

Documents for Application:
Transcripts (must have B.S. or equivalent)*
Application Fee*
TOEFL Score*
Curriculum Vitae or resume
A “Personal Statement” of your interest and goals from the program
Graduate Students must submit letter of support from major professor
(*Required by Graduate College)

Transfer of Courses
With the approval of the Bioinformatics Certificate Program Committee and the Graduate College, up to 3 hours of graduate-level credit from another institution may be used toward certificate requirements. The GPA must be at least 3.0 on any transfer credit.

Program Structure
The Certificate requires completion of 16 graduate level course credit hours. A required capstone project demonstrates mastery of bioinformatics technologies. A minimum of 12 credit hours must be at the 5000 level or above.