

Doctor of Philosophy in Bioengineering
Track: Computational Bioengineering

Students entering SP20 to present

Track Director: Suzanne Shontz, Ph.D. (shontz@ku.edu)

CORE	6 hours required
-------------	-------------------------

C&PE 756	Intro to Bioengineering (3)
BIOE 800	Bioengineering Colloquium (.5) (2 total hours req)
BIOE 801	Responsible Conduct of Research in Engineering (1)

DEPTH	15 hours required
--------------	--------------------------

1. FUNDAMENTALS COURSE (1 course minimum)

EECS 639	Introduction to Scientific Computing (3)
EECS 730	Introduction to Bioinformatics (3)
EECS 731	Introduction to Data Science (3)
BINF 701	Computational Biology I (5) - cannot take w/ EECS 730

2. ELECTIVE COURSES (3 course minimum)

BINF 702	Computational Biology II (5)
EECS 660	Fundamentals of Computer Algorithms (3)
EECS 738	Machine Learning (3)
EECS 739	Parallel Scientific Computing (3)
EECS 740	Digital Image Processing (3)
EECS 837	Data Mining (3)
EECS 839	Mining Special Data (3)
ME 751	Experimental Methods in Biomechanics (3)
ME 755	Computer Simulation in Biomechanics (3)
ME 854	Continuum Mechanics for Soft Tissues (3)
ME 861	Theory of the Finite Element Method (3)
EECS 868 or CPE 778	Math Opt w/ Applications or Applied Opt. Methods (3)
CE 861	Finite Element Methods for Solid Mechanics (3)
AE 746	Computational Fluid Dynamics (3)
BIOL 952	Introduction to Molecular Modeling (3)
PRVM 868	Bioinformatics Driven Clinical Research (3)
BIOS/STAT 730	Applied Linear Regression (3)
BIOS/STAT 799	Introduction to Statistical Genomics (3)
BIOS/STAT 823	Introduction to Programming & Applied Stats in R (3)

BREADTH	15 hours required
----------------	--------------------------

1. Math; Statistics; Numerical Methods (1 course min)
2. Sciences (1 course min)
3. Advanced Engineering (1 course min)

RESEARCH	18 hours minimum - 24 hours maximum
-----------------	--

BIOE 999	Independent Investigation (Dissertation)
----------	--

These hours are taken under your advisor/committee chair.

MINIMUM HOURS REQUIRED FOR DEGREE: 60

No more than 3 classes may be taken at the 500-600 level and counted towards the graduate degree.