# KU BIOENGINEERING GRADUATE PROGRAM
## The University of Kansas

## Master of Science 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** | **9 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 (1 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 C&PE 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** | **9 hours required** |

1. Math; Statistics; Numerical Methods (1 course min)

2. Sciences (1 course min)

3. Advanced Engineering (1 course min)

| RESEARCH | 6 hours minimum |
|---|---|
| BIOE 899 | Independent Investigation (Thesis) |

*These hours are taken under your advisor/committee chair.*

**MINIMUM HOURS REQUIRED FOR DEGREE: 30**

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