**Area 2 – Computing, Math, Stats, and Engineering - 18 hours**

**BDSI Electives - Choose 1-2 (minimum 3 hours)**
- Biomedical Informatics Foundations - Both
- Research Foundations - Choose 1

**Area 1 - Biomedical Informatics Foundations and Applications - 15-16 hours**

**BDSI-PhD Curriculum**

- MUSC students taking BDSI 8120 will register with course number BDSI 712
- MUSC students taking BDSI 8110 will register with course number BDSI 711
- MUSC students taking BDSI 8020 will register with course number BDSI 702

**Area 3 - Population Health, Health Systems, and Policy - 5-6 hours**

**Area 4 - Domain Biology/Medicine - 3-4 hours**

**Area 5 - Seminars/Lab Rotations/Research Hours - 24 hours**

**Lab Rotations - 4 hours**

**Course Descriptions**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>CPSC 8700</td>
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**Foundations of Software Engineering**

**Human Factors Engineering**

**Principles of Scientific Computing**

**Introduction to Parallel Systems**

**Parallel Architectures**

**High-Performance Computing with GPUs**

**Database Management System**

**Microbiome Informatics**

**Health Enterprise Analytics**

**Consumer and Quantified Self**

**Statistical Methods for Bioinformatics**

**Bioinformatics Algorithms**

**Precision Medicine Informatics**

**Biomedical Data Standards and Terminologies**

**Intro to Biomedical Informatics**

**Applied Statistical and Research Methods**

**Other - Choose 2**

**Machine Learning/Data Science - Choose 1**

**Engineering**

**Applied Software**

**HCI/Usability**

**Tools and Technology**

**Data Management**

**Design & Analysis of Algorithms**

**GIS and Mapping for Public Health**

**Engineering Optimization and Applications**

**Knowledge Engineering**

**Introduction to Stochastic Models**

**Medical Imaging**

**Digital Image Processing**

**Deep Learning**

**Scientific Visualization**

**Bayesian Biostatistics**

**Network Science**

**Quantitative Analysis in Health Research I**

**Biostatistics**

**Applied Data Science**

**Advanced Machine Learning**

**Artificial Intelligence**

**Statistical Methods**

**Data Analysis**

**Natural Language Processing**

**Algorithms and Modeling**

**Decision Analysis/Modeling**

**Image and Signal Processing**

**Data Mining**

**Biostatistics**

**Applied Genomics**

**Molecular Biology: Genes to Proteins**

**Learning From the Literature**

**Principles Practices & Professionalism**

**Cells: Organization and Communication**

**Genes: Inheritance and Expression**

**Proteins: Dynamic Structure and Functions**

**Ethical, Legal, and Regulatory Issues in Health**

**Health Law and Risk Management**

**Quality Management of Health Services**

**Health Systems Quality Improvement**

**Health Policy**

**Managing Healthcare Information**

**Health Economics**

**Genetics**

**Biomedical Foundations of Genetics**

**Biomedical**

**Foundations of Genetics**

**Privacy and Security**

**Social Issues; Ethical, Legal, and Regulatory Issues in Health**

**Health Systems**

**Health Informatics**

**Data Science and Business Analytics**

**Data Science and Business Analytics 2**

**Data Science and Business Analytics 3**

**Data Science and Business Analytics 4**

**Artificial Intelligence and Big Data in Healthcare**

**Health Informatics and Analytics**

**Data Science and Business Analytics 5**

**Data Science and Business Analytics 6**

**Artificial Intelligence and Big Data in Healthcare 2**

**Health Informatics and Analytics 2**

**Data Science and Business Analytics 7**

**Data Science and Business Analytics 8**

**Artificial Intelligence and Big Data in Healthcare 3**

**Health Informatics and Analytics 3**

**Data Science and Business Analytics 9**

**Data Science and Business Analytics 10**

**Artificial Intelligence and Big Data in Healthcare 4**

**Health Informatics and Analytics 4**

**Data Science and Business Analytics 11**

**Data Science and Business Analytics 12**

**Artificial Intelligence and Big Data in Healthcare 5**

**Health Informatics and Analytics 5**

**Data Science and Business Analytics 13**

**Data Science and Business Analytics 14**

**Artificial Intelligence and Big Data in Healthcare 6**

**Health Informatics and Analytics 6**

**Data Science and Business Analytics 15**

**Data Science and Business Analytics 16**

**Artificial Intelligence and Big Data in Healthcare 7**

**Health Informatics and Analytics 7**

**Data Science and Business Analytics 17**

**Data Science and Business Analytics 18**

**Artificial Intelligence and Big Data in Healthcare 8**

**Health Informatics and Analytics 8**

**Data Science and Business Analytics 19**

**Data Science and Business Analytics 20**

**Artificial Intelligence and Big Data in Healthcare 9**

**Health Informatics and Analytics 9**

**Data Science and Business Analytics 21**

**Data Science and Business Analytics 22**

**Artificial Intelligence and Big Data in Healthcare 10**

**Health Informatics and Analytics 10**

**Data Science and Business Analytics 23**

**Data Science and Business Analytics 24**

**Artificial Intelligence and Big Data in Healthcare 11**

**Health Informatics and Analytics 11**

**Data Science and Business Analytics 25**

**Data Science and Business Analytics 26**

**Artificial Intelligence and Big Data in Healthcare 12**

**Health Informatics and Analytics 12**

**Data Science and Business Analytics 27**

**Data Science and Business Analytics 28**

**Artificial Intelligence and Big Data in Healthcare 13**

**Health Informatics and Analytics 13**

**Data Science and Business Analytics 29**

**Data Science and Business Analytics 30**

**Artificial Intelligence and Big Data in Healthcare 14**

**Health Informatics and Analytics 14**

**Data Science and Business Analytics 31**

**Data Science and Business Analytics 32**

**Artificial Intelligence and Big Data in Healthcare 15**

**Health Informatics and Analytics 15**

**Data Science and Business Analytics 33**

**Data Science and Business Analytics 34**

**Artificial Intelligence and Big Data in Healthcare 16**

**Health Informatics and Analytics 16**

**Data Science and Business Analytics 35**

**Data Science and Business Analytics 36**

**Artificial Intelligence and Big Data in Healthcare 17**

**Health Informatics and Analytics 17**

**Data Science and Business Analytics 37**

**Data Science and Business Analytics 38**

**Artificial Intelligence and Big Data in Healthcare 18**

**Health Informatics and Analytics 18**

**Data Science and Business Analytics 39**

**Data Science and Business Analytics 40**

**Artificial Intelligence and Big Data in Healthcare 19**

**Health Informatics and Analytics 19**

**Data Science and Business Analytics 41**

**Data Science and Business Analytics 42**

**Artificial Intelligence and Big Data in Healthcare 20**

**Health Informatics and Analytics 20**

**Data Science and Business Analytics 43**

**Data Science and Business Analytics 44**

**Artificial Intelligence and Big Data in Healthcare 21**

**Health Informatics and Analytics 21**

**Data Science and Business Analytics 45**

**Data Science and Business Analytics 46**

**Artificial Intelligence and Big Data in Healthcare 22**

**Health Informatics and Analytics 22**

**Data Science and Business Analytics 47**

**Data Science and Business Analytics 48**

**Artificial Intelligence and Big Data in Healthcare 23**

**Health Informatics and Analytics 23**

**Data Science and Business Analytics 49**

**Data Science and Business Analytics 50**

**Artificial Intelligence and Big Data in Healthcare 24**

**Health Informatics and Analytics 24**

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Last Revised: May 31, 2022