# Area Courses
## Data Science and Engineering

### Fundamental Courses
- **CSCI 455X** Introduction to Programming Systems Design  
  4 units
- **EE 503** Probability for Electrical and Computer Engineers  
  4 units
- **EE 510** Linear Algebra for Engineering  
  4 units

### Data Science Infrastructure
- **EE 542** Internet and Cloud Computing  
  3 units  
  EE 450 or EE 457
- **CSCI 551** Computer Networking  
  4 units  
  CSCI 402, EE 450
- **EE 553** Computational Solution of Optimization Problems  
  3 units  
  EE 510
- **EE 565** Information Theory and Its Application to (Big) Data Sciences  
  4 units  
  EE 503
- **CSCI 570** Analysis of Algorithms  
  4 units
- **CSCI 585** Database Systems  
  4 units

### Machine Learning
- **EE 500** Neural Learning and Computational Intelligence  
  4 units  
  EE 483, EE 503, EE 510
- **EE 559** Mathematical Pattern Recognition  
  3 units  
  EE 503, EE 510
- **EE 546** Mathematics of High-Dimensional Data  
  4 units  
  EE 503, EE 510
- **EE 660** Machine Learning from Signals: Foundations and Methods  
  3 units  
  EE 503, EE 510, EE 559

### Statistical Methods for Data Analytics
- **EE 517** Statistics and Data Analysis for Engineers  
  4 units  
  EE 503
- **MATH 541A** Introduction to Mathematical Statistics  
  3 units
- **EE 563** Estimation Theory  
  3 units  
  EE 503
- **EE 583** Statistical Signal Processing  
  3 units  
  EE 503

### Signal Data Analytics
- **EE 483** Introduction to Digital Signal Processing  
  4 units
- **EE 592** Computational Methods for Inverse Problems  
  3 units  
  EE 483, EE 510
- **EE 596** Wavelets and Graphs for Signal Processing and Machine Learning  
  4 units  
  EE 483, EE 510

### Visual Data Analytics
- **EE 569** Introduction to Digital Image Processing  
  4 units  
  EE 503
- **EE 669** Multimedia Data Compression  
  3 units  
  EE 503
- **CSCI 677** Advanced Computer Vision  
  4 units

### Speech and Language Data Analytics
- **EE 519** Speech Recognition and Processing for Multimedia  
  3 units  
  EE 483
- **CSCI 544** Applied Natural Language Processing  
  4 units
- **EE 619** Advanced Topics in Automatic Speech Recognition  
  3 units  
  EE 503, EE 519, CSCI 544

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**Legend**

- **Grouping**: EE 000 Course Title  
  Course Units  
  Prerequisite Courses  
  Corequisite Courses  
  Recommended Prep.

- **indicates a class with a significant computing/design component**

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This chart shows course relationships

Please check the University Catalogue for specific course details including any recommended preparatory courses and Degree Requirements

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