

| Area 1 - Biomedical Informatics Foundations and Applications - 12 hours |      |           |                                             |
|-------------------------------------------------------------------------|------|-----------|---------------------------------------------|
| Research Foundations - Choose 1                                         |      |           |                                             |
| 3                                                                       | CLEM | HLTH 8210 | Health Research 1: Design and Measurement   |
| Biomedical Informatics Foundations - Both                               |      |           |                                             |
| 3                                                                       | MUSC | BDSI 8010 | Intro to Biomedical Informatics             |
| 3                                                                       | MUSC | BDSI 8020 | Biomedical Data Standards and Terminologies |
| Track Specific Course - Choose 1                                        |      |           |                                             |
| 3                                                                       | MUSC | BDSI 8110 | Precision Medicine Informatics              |
| 3                                                                       | MUSC | BDSI 8120 | Clinical and Translational Informatics      |
| 3                                                                       | CLEM | HLTH 8900 | Population Health Informatics               |
| 3                                                                       | CLEM | HLTH 8900 | Clinical Decision Support Systems           |
| 3                                                                       | MUSC | CPSC 8810 | Clinical Natural Language Processing        |

| Area 2 – Computing, Math, Stats, and Engineering - 12 hours |      |           |                                                   |
|-------------------------------------------------------------|------|-----------|---------------------------------------------------|
| Systems and Data Base Management - Choose 1                 |      |           |                                                   |
| 3                                                           | CLEM | CPSC 6620 | Database Management System                        |
| 3                                                           | CLEM | CPSC 8620 | Database Management System Design                 |
| 3                                                           | CLEM | CPSC 8470 | Introduction to Information Retrieval             |
| 3                                                           | CLEM | CPSC 6550 | Computational Science: Methods & Software Systems |
| 3                                                           | CLEM | ECE 6780  | General Purpose Computation on GPUs               |
| 3                                                           | CLEM | ECE 8780  | High-Performance Computing with GPUs              |
| 3                                                           | CLEM | CPSC 8200 | Parallel Architectures                            |
| 3                                                           | CLEM | ECE 6730  | Introduction to Parallel Systems                  |
| 3                                                           | CLEM | CPSC 8490 | Principles of Scientific Computing                |
| 3                                                           | CLEM | CPSC 6140 | Human and Computer Interaction                    |
| 3                                                           | CLEM | HCC 8310  | Fundamentals of Human-Centered Computing          |
| 3                                                           | CLEM | IE 6880   | Human Factors Engineering                         |
| 3                                                           | CLEM | IE 8000   | Human Factors Engineering                         |
| 3                                                           | CLEM | CPSC 8710 | Foundations of Software Engineering               |
| 3                                                           | CLEM | CPSC 8700 | Software Design                                   |

| Area 2 (continued) – Computing, Math, Stats, and Engineering - 12 hours |      |              |                                                 |
|-------------------------------------------------------------------------|------|--------------|-------------------------------------------------|
| Math - Choose 1                                                         |      |              |                                                 |
| 3                                                                       | CLEM | MATH 8050    | Data Analysis                                   |
| 3                                                                       | CLEM | STAT 8010    | Statistical Methods                             |
| Machine Learning/Data Science - Choose 1                                |      |              |                                                 |
| 3                                                                       | CLEM | CPSC 6420    | Artificial Intelligence                         |
| 3                                                                       | CLEM | CPSC 6430    | Machine Learning: Implementation and Evaluation |
| 3                                                                       | CLEM | CPSC 8420    | Advanced Machine Learning                       |
| 3                                                                       | CLEM | CPSC 6300    | Applied Data Science                            |
| Other - Choose 1                                                        |      |              |                                                 |
| 3                                                                       | CLEM | STAT 8190    | Biostatistics                                   |
| 3                                                                       | CLEM | HLTH 8310    | Quantitative Analysis in Health Research I      |
| 3                                                                       | CLEM | STAT 6020    | Introduction to Statistical Computing           |
| 3                                                                       | CLEM | CPSC 8650    | Data Mining                                     |
| 3                                                                       | CLEM | ECE 8560     | Pattern Recognition                             |
| 3                                                                       | CLEM | CPSC 8480    | Network Science                                 |
| 3                                                                       | CLEM | MATH 8070    | Applied Multivariate Statistical Analysis       |
| 3                                                                       | CLEM | CPSC 6030    | Data Visualization                              |
| 3                                                                       | CLEM | CPSC 8030    | Scientific Visualization                        |
| 3                                                                       | CLEM | CPSC 8430    | Deep Learning                                   |
| 3                                                                       | CLEM | ECE 6310     | Introduction to Computer Vision                 |
| 3                                                                       | CLEM | ECE 6670     | Introduction to Digital Signal Processing       |
| 3                                                                       | CLEM | ECE 8470     | Digital Image Processing                        |
| 3                                                                       | CLEM | BIOE 6310/11 | Medical Imaging                                 |
| 3                                                                       | CLEM | MATH 6410    | Introduction to Stochastic Models               |
| 3                                                                       | CLEM | ECE 6420     | Knowledge Engineering                           |
| 3                                                                       | CLEM | IE 8030      | Engineering Optimization and Applications       |
| 3                                                                       | CLEM | PADM 8420    | GIS for Public Administrators                   |
| 3                                                                       | CLEM | CPSC 8400    | Design & Analysis of Algorithms                 |
| 3                                                                       | CLEM | CPSC 8380    | Advanced Data Structure                         |

| Area 3 - Population Health, Health Systems, and Policy - 5-6 hours |      |           |                                    |
|--------------------------------------------------------------------|------|-----------|------------------------------------|
| Choose 2                                                           |      |           |                                    |
| 3                                                                  | CLEM | HLTH 8110 | Health Care Delivery Systems       |
| 3                                                                  | CLEM | HLTH 8020 | Health Economics                   |
| 3                                                                  | CLEM | HLTH 8100 | Health Policy                      |
| 2                                                                  | CLEM | HLTH 8140 | Health Systems Quality Improvement |
| 2                                                                  | CLEM | HLTH 8130 | Population Health and Research     |
| 3                                                                  | CLEM | HLTH 8090 | Epidemiology                       |
| 3                                                                  | CLEM | HLTH 8900 | Clinical Decision Support Systems  |

| Area 4 - Domain Biology/Medicine - 3-4 hours |      |            |                                                   |
|----------------------------------------------|------|------------|---------------------------------------------------|
| Choose 1                                     |      |            |                                                   |
| 3                                            | CLEM | PHYS 8190  | Computational Biophysics                          |
| 3                                            | CLEM | MICRO 8130 | Practical Bioinformatics for Microbiologists      |
| 3                                            | CLEM | BIOL 8010  | Concepts in Molecular, Cellular and Dev. Bio      |
| 3                                            | CLEM | BIOL 8000  | Concepts in Evolution, Ecology and Organismal Bio |
| 3                                            | CLEM | GEN 6400   | Bioinformatics                                    |
| 3                                            | CLEM | BIOE 8460  | Biomedical Basis for Engineered Replacement       |
| 3                                            | CLEM | BCHM 6360  | Molecular Biology: Genes to Proteins              |
| 3                                            | CLEM | BCHM 6430  | Molecular Basis for Disease                       |
| 3                                            | CLEM | BCHM 8140  | Advanced Biochemistry                             |
| 3                                            | CLEM | GEN 6700   | Human Genetics                                    |
| 3                                            | CLEM | MATH 9810  | Statistical Genetics                              |
| 3                                            | CLEM | GEN 8900   | Introduction to Quantitative Genetics             |
| 3                                            | CLEM | GEN 8140   | Advanced Genetics                                 |
| 3                                            | CLEM | GEN 6200   | Molecular Genetics and Gene Regulation            |
| 3                                            | CLEM | GEN 6100   | Population & Quantitative Genetics                |
| 3                                            | CLEM | GEN 6050   | Molecular Genetics of Eukaryotes                  |
| 3                                            | CLEM | BIOL 6030  | Introduction to Applied Genomics                  |
| 3                                            | CLEM | HCG 9150   | Principles of Pharmacogenomics                    |
| 3                                            | CLEM | CHE 8450   | Systems Biology and Pharmacology                  |
| 3                                            | CLEM | GEN 8450   | Advanced Medical Bioinformatics                   |
| 3                                            | CLEM | GEN 8200   | Genomics and Proteomics                           |
| 3                                            | CLEM | GEN 8060   | Molecular Diagnostics and Pathogen Genomics       |
| 3                                            | CLEM | GEN 8900   | Regulatory Genomics                               |

| Area 5 - Seminars           |  |           |         |
|-----------------------------|--|-----------|---------|
| Recommended for MS students |  |           |         |
| 1                           |  | BDSI 8000 | Seminar |
| 1                           |  | BDSI 8000 | Seminar |
| 1                           |  | BDSI 8000 | Seminar |
| 1                           |  | BDSI 8000 | Seminar |