Suggested Preliminary Programs of Study by student's areas of interest

HOW TO USE THESE TEMPLATES:
Two templates (below) are provided in this guide to help students begin the process of creating their own Programs of Study. One template is for students with interest in Data Science, and the other for students interested in Modeling and Simulation.

Once the tentative plan is completed, fill it out in a blank Form 1 and hand it in to the Program Administrator for processing. Any academic questions should be addressed to the Director of Graduate Studies.

***Complete this template within the first 4 weeks in the PhD*.**

The **core courses** in each template are aligned with each of the two possible areas of interests and are therefore suggested to be taken as indicated.

The **area of emphasis** courses allow more flexibility and depend on the student's research interests. The courses in each template are those with widest general interest for each area. *However, before advancement to candidacy, the courses can be substituted by others that more closely match the student's research interests, and should be discussed and revised with the student's research advisor*. Changes are possible and even encouraged on the basis of research direction. In some cases, it may be decided that a student should take more than 18 credits of area of emphasis, which would reduce the credits needed in electives and also credits that can be reduced or transferred from graduate work prior to joining the CSI PhD. **An updated list of the courses** with CSI codes taught **in recent years is attached** and updated every term to help create a program of study.

Elective courses: Elective courses should generally be used to emphasize or complement training in relevant areas and techniques that students require for their dissertation. Reduced/transferred credits are almost always counted towards electives and are explicitly written into the program of study. **Taking CSS courses counts as elective courses.**

Remedial skills courses: Students requiring courses to improve or refresh their programming/quantitative skills should consider CSI 500 (Computational Science Tools) which teaches scientific packages such as R, and CSI 501 (Introduction to Scientific Programming) which focuses on programming languages. **Only one 500 level course will count towards the 48 coursework credits. CSI 600 and undergrad level courses will not count for credit. However, if the material is needed it is advisable to take such courses even if credits are not counted.**

Admissions with Provisions: The proposed program of study of students provisionally admitted needs to include all the courses in the provisions in the first 2 semesters. Follow the rest of this guidance for all other courses.

Semester each course is to be taken: The list of courses taught in recent years should help frame a tentative timeframe. Some courses are taught in the Fall, some in Spring, and some are taught in non-consecutive years. All such details must be considered. Please also consider this on courses from other departments.

Department of Computational and Data Sciences
Doctoral Program in Computational Sciences and Informatics (CSI)
PROPOSED COURSEWORK (DATA SCIENCE TEMPLATE)

Core Requirements (6 credits)	Cred Hrs	Institution	Semester	Grade
CSI 695 Scientific Databases	3	GMU		
CSI 703 Scientific & Statistical Viz	3	GMU		
Areas of Emphasis (18 credits)				
CSI 672[1] Statistical Inference	3	GMU		
CSI 674[2] Bayesian Infer Decis Theor	3	GMU		
CSI 678[3] Time Series Analys Forecast	3	GMU		
CSI 775[4] Graph Mod for Decis Making	3	GMU		
CSI 777 Princpls of Knowledge Mining	3	GMU		
CSI 873 Comp Learn and Discovery	3	GMU		
Electives (23 credits)				
Seminar/Colloquium (up to 1 credits)	1			
Dissertation Requirements				
CSI 998 up to 18 credits plus	24			
CSI 999 minimum of 6 credits				

[1] Crosslisted as STAT 652
[2] Crosslisted as OR 664/SYST 664
[3] Crosslisted as STAT 658
[4] Crosslisted as OR 719

Department of Computational and Data Sciences
Doctoral Program in Computational Sciences and Informatics (CSI)
PROPOSED COURSEWORK (MODELING TEMPLATE)

Core Requirements (6 credits)	Cred Hrs	Institution	Semester	Grade
CSI 690 Numerical Methods[1]	3	GMU		
CSI 702 High Performance Computing	3	GMU		
Areas of Emphasis (18 credits)				
CSI 678[2] Time Series Anlys Forecast	3	GMU		
CSI 695 Scientific Databases	3	GMU		
CSI 703 Scientific & Statistical Vislz	3	GMU		
CSI 747 Nonlinear Optimization Apps	3	GMU		
CSI 758 Visualiz/Model Complex Sys	3	GMU		
CSI 786 Molecular Dynamics Model	3	GMU		
Electives (23 credits)				
Seminar/Colloquium (up to 1 credits)	1			
Dissertation Requirements				
CSI 998 up to 18 credits plus	24			
CSI 999 minimum of 6 credits				

[1] Crosslisted with MATH 685/OR 682
[2] Crosslisted with