COMPUTATIONAL MOD, SIM, & DATA (CX)

CX 1XXX. CSE Elective. 1-21 Credit Hours.
Course topics will vary. This course number will be to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 2XXX. CSE Elective. 1-21 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 1801. Special Topics in Computational Science and Engineering. 1 Credit Hour.
Course topics will vary. This course number will use to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 1802. Special Topics in Computational Science and Engineering. 2 Credit Hours.
Course topics will vary. This course number will be to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 1803. Special Topics in Computational Science and Engineering. 3 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 1804. Special Topics in Computational Science and Engineering. 4 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 1805. Special Topics in Computational Science and Engineering. 5 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 2801. Special Topics in Computational Science and Engineering. 1 Credit Hour.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 2802. Special Topics in Computational Science and Engineering. 2 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 2803. Special Topics in Computational Science and Engineering. 3 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 2804. Special Topics in Computational Science and Engineering. 4 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 2805. Special Topics in Computational Science and Engineering. 5 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 2806. Special Topics in Computational Science and Engineering. 6 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 3XXX. CSE Elective. 1-21 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 3801. Special Topics in Computational Science and Engineering. 1 Credit Hour.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 3802. Special Topics in Computational Science and Engineering. 2 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 3803. Special Topics in Computational Science and Engineering. 3 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 3804. Special Topics in Computational Science and Engineering. 4 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 3805. Special Topics in Computational Science and Engineering. 5 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 3806. Special Topics in Computational Science and Engineering. 6 Credit Hours.
Course topics will vary. This course number will be used to prototype new courses and/or offer courses on topics of timely interest. The final digit in the course number indicates the number of units offered awarded for the course.

CX 4010. Computational Problem Solving for Scientists and Engineers. 3 Credit Hours.
Computing principles, computer architecture, algorithms and data structures; software development, parallelism. No credit for graduate students or undergraduates in Computer Science or Computational Media.

CX 4140. Computational Modeling Algorithms. 3 Credit Hours.
Design, analysis and implementation of algorithms for modeling natural and engineered systems; algorithm experimentation, and optimization.

CX 4220. Introduction to High Performance Computing. 3 Credit Hours.
Design of algorithms and software for high performance computing platforms used in computational science and engineering. Topics include parallelism, locality, machine architectures, and programming.
CX 4230. Computer Simulation. 3 Credit Hours.
Algorithms and techniques for creating computer simulations and their
realization in software.

CX 4232. Simulation and Military Gaming. 3 Credit Hours.
Creation and use of modeling and simulation tools to analyze and train
students regarding strategic events in international relations.

CX 4236. Distributed Simulation. 3 Credit Hours.
Algorithms and techniques used to execute simulations on parallel/
distributed computing platforms. Simulations for analysis, virtual
environments, and computer gaming.

CX 4240. Introduction to Computing for Data Analysis. 3 Credit Hours.
Computational techniques needed for data analysis; programming,
accessing databases, multidimensional arrays, basic numerical
computing, and visualization; hands-on applications and case studies.

CX 4242. Data and Visual Analytics. 3 Credit Hours.
Introduction to the analysis of complex data; theory, applications and
practical case studies.

CX 4640. Numerical Analysis I. 3 Credit Hours.
Introduction to numerical algorithms for some basic problems in
computational mathematics. Discussion of both implementation issues
and error analysis.

CX 4641. Numerical Analysis II. 3 Credit Hours.
Introduction to the numerical solution of initial and boundary value
problems in differential equations.

CX 4777. Introduction to Parallel and Vector Scientific Computing. 3
Credit Hours.
Scientific computational algorithms on vector and parallel computers.
Speed-up and algorithm complexity, interprocess communication,
synchronization, modern algorithms for linear systems, programming
techniques, code optimization.

CX 4801. Special Topics in Computational Science and Engineering. 1
Credit Hour.
Course topics will vary. This course number will be used to prototype new
courses and/or offer courses on topics of timely interest. The final digit in
the course number indicates the number of units offered awarded for the
course.

CX 4802. Special Topics in Computational Science and Engineering. 2
Credit Hours.
Course topics will vary. This course number will be used to prototype new
courses and/or offer courses on topics of timely interest. The final digit in
the course number indicates the number of units offered awarded for the
course.

CX 4803. Special Topics in Computational Science and Engineering. 3
Credit Hours.
Course topics will vary. This course number will be used to prototype new
courses and/or offer courses on topics of timely interest. The final digit in
the course number indicates the number of units offered awarded for the
course.

CX 4804. Special Topics in Computational Science and Engineering. 4
Credit Hours.
Course topics will vary. This course number will be used to prototype new
courses and/or offer courses on topics of timely interest. The final digit in
the course number indicates the number of units offered awarded for the
course.

CX 4805. Special Topics in Computational Science and Engineering. 5
Credit Hours.
Course topics will vary. This course number will be used to prototype new
courses and/or offer courses on topics of timely interest. The final digit in
the course number indicates the number of units offered awarded for the
course.

CX 4893. Special Topics. 3 Credit Hours.
Special Topics for CX (lecture + lab).

CX 4903. Special Problems in Computational Science and Engineering. 3
Credit Hours.
An investigation of significant areas of computational science and
engineering. Guided study and research.

CX 4XXX. CSE Elective. 1-21 Credit Hours.