**COMPUTER SCIENCE - CA (COMP)**

**COMP 505: Theory of Computation**
3 Credits
Topics in discrete mathematics, discrete probability, first order logic and models of computation.
**Prerequisite:** CMPSC463

**COMP 511: Design and Analysis of Algorithms**
3 Credits
Amortized analysis, graph algorithms, NP-complete problems, approximation algorithms, parallel algorithms.
**Prerequisite:** CMPSC463

**COMP 512: Advanced Operating Systems**
3 Credits
A study of the principles and practice of distributed system design, including communication, synchronization, processes, file systems, and memory management.
**Prerequisite:** CMPSC472

**COMP 513: Formal Methods for Software Engineering**
3 Credits
Object-oriented software development, formal specification techniques and related CASE tools, software re-use, verification and validation, transformational development.
**Prerequisite:** CMPSC487W, COMP 511, or permission of the program

**COMP 516: Advanced Programming Languages**
3 Credits
Programming paradigms and styles, object-oriented programming, formal semantics, programming language design.
**Prerequisite:** CMPSC460

**COMP 517: Computer Security**
3 Credits
Introduction to the area of computer security and current issues associated with computer security.
**Prerequisite:** MATH 315

**COMP 519: Advanced Topics in Database Management Systems**
3 Credits
Concurrency control, crash recovery, query processing, semantic data models, advanced file access, distributed database systems, performance, case studies, advanced applications.
**Prerequisite:** CMPSC430, MATH 315

**COMP 520: Artificial Intelligence**
3 Credits
Problem solving, knowledge representation, language understanding, perception, learning, artificial neural networks.
**Prerequisite:** CMPSC463

**COMP 524: Evolutionary Computation**
3 Credits
Topics in evolutionary algorithms and genetic algorithms.
**Prerequisite:** COMP 511 or permission of the program

**COMP 525: Computer Architecture**
3 Credits
Cache, pipelining, memory design, interconnection networks, multiprocessor systems.
**Prerequisite:** CMPSC312

**COMP 592: Master's Studies**
3 Credits/Maximum of 3
Presentation of various research techniques, in-depth study of a specific computer science problem, development of a written paper or project, and an oral defense.
**Prerequisite:** A minimum of 2 of the 500-level computer science required courses or permission of the program

**COMP 597: Special Topics**
1-9 Credits/Maximum of 9
Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.

**COMP 600: Thesis Research**
1-15 Credits/Maximum of 999
Research into a specific computer science problem, development of a scholarly written paper, and an oral defense.
**Prerequisite:** A minimum of 2 of the 500-level computer science required courses or permission of the program.