COMPUTATIONAL SCIENCE

- Major: 60-65 credit hours

TRACKS:
- Economics and Finance
- Biology
- Chemistry
- Mathematics
- Physics

PROGRAM REQUIREMENTS:
Major/Minor GPA required for graduation: 2.25
All courses for the major and minor must be completed with a grade of C- or better.

Description of Major: The computational science major emphasizes the use of computers and mathematics in the development of solutions to complex problems. Students majoring in computational science take a variety of mathematics and computer science courses that provide the needed theoretical foundation. Additionally, students take courses in a field of specialization, which provides an application area. Students may specialize in economics and finance, biology, chemistry, mathematics, or physics. Students in consultation with a faculty member may also develop a field of specialization that meets individual interests. Computational science majors are prepared for variety of careers in industry, research labs and engineering facilities.

COMPUTATIONAL SCIENCE MAJOR REQUIREMENTS 60-65 crs.

REQUIRED COURSES 40 crs.

CSI 130 INTRODUCTION TO COMPUTING I (4)
CSI 230 INTRODUCTION TO COMPUTING II (4)
CSI 235 MATHEMATICS OF COMPUTING (3)
CSI 300 COMPUTER ORGANIZATION AND ARCHITECTURE (3)
CSI 330 DATA STRUCTURES AND ALGORITHMS (3)
CSI 335 ANALYSIS OF ALGORITHMS (3)
CSI 366 NUMERICAL ANALYSIS (3)
CSI 450 COMPUTER NETWORKING AND COMMUNICATIONS (3)
CSI 497 SENIOR SEMINAR I (1)
CSI 498 SENIOR SEMINAR II (2)
MTH 210 CALCULUS I (4)
MTH 211 CALCULUS II (4)
PWR 360 INTERDISCIPLINARY PROFESSIONAL
AND TECHNICAL WRITING (W) (3)

ONE COURSE FROM THE FOLLOWING 3 crs.

CSI 345 THE STRUCTURE OF OPERATING SYSTEMS (3)
CSI 369 SOCIAL, LEGAL, AND ETHICAL ISSUES OF COMPUTING (W) (3)

CSI 380-389 SPECIAL TOPICS IN COMPUTING AND INFORMATION SYSTEMS (3)
CSI 410 SOFTWARE ENGINEERING (W) (3)
CSI 415 ADVANCED DATABASE CONCEPTS (3)
CSI 440 ARTIFICIAL INTELLIGENCE (3)
CSI 445 DATA MINING (3)
CSI 465 COMPILER DESIGN (3)
CSI 470 INTERNSHIP IN COMPUTING AND INFORMATION SCIENCE (3)
CSI 480 INDEPENDENT STUDY IN COMPUTING
AND INFORMATION SCIENCE (3)

ECONOMICS AND FINANCE TRACK REQUIRED COURSES 18-19 crs.

MTH 170 STATISTICS (4)

or

MTH 340 INTRODUCTION TO PROBABILITY AND STATISTICS (3)
ECO 211 PRINCIPLES OF MICROECONOMICS (3)
ECO 212 PRINCIPLES OF MACROECONOMICS (3)
FIN 308 PRINCIPLES OF BUSINESS FINANCE (3)
FIN 309 MONEY AND BANKING (3)
ECO 353 MANAGERIAL ECONOMICS (3)

BIOLOGY TRACK REQUIRED COURSES 22 crs.
BIO 110 PRINCIPLES OF BIOLOGY I (4)
BIO 111 PRINCIPLES OF BIOLOGY II (4)
BIO 211 GENETICS (4)
CHE 105 GENERAL CHEMISTRY I (5)
CHE 106 GENERAL CHEMISTRY II (5)

CHEMISTRY TRACK REQUIRED COURSES 19 crs.
CHE 105 GENERAL CHEMISTRY I (5)
CHE 106 GENERAL CHEMISTRY II (5)
CHE 150 PRINCIPLES OF ORGANIC CHEMISTRY (4)
CHE 300 ANALYTICAL CHEMISTRY (5)

MATHEMATICS TRACK REQUIRED COURSES 17 crs.
MTH 212 CALCULUS III (4)
MTH 340 PROBABILITY (3)
MTH 341 APPLIED STATISTICS (4)
MTH 370 DIFFERENTIAL EQUATIONS AND MODELING (3)
MTH 376 GRAPH THEORY (3)

PHYSICS TRACK REQUIRED COURSES 19 crs.
PHY 221 UNIVERSITY PHYSICS I: MECHANICAL AND THERMAL PHYSICS (5)
PHY 222 UNIVERSITY PHYSICS II: ELECTRICITY, MAGNETISM, AND QUANTUM PHYSICS (5)
PHY 301 ENGINEERING MECHANICS I: STATICS (3)
PHY 302 ENGINEERING MECHANICS II: DYNAMICS (3)

PHY 303 ELECTRONIC CIRCUITS (3)

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