

*COMPUTATIONAL SCIENCE***Kian Pokorny, PhD, Professor of Computing; Chair, Division of Computing**

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■ **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)
<i>or</i>		
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	COLLEGE CHEMISTRY I	(5)
CHE 106	COLLEGE CHEMISTRY II	(5)

CHEMISTRY TRACK REQUIRED COURSES **19 crs.**

CHE 105	COLLEGE CHEMISTRY I	(5)
CHE 106	COLLEGE CHEMISTRY II	(5)
CHE 150	PRINCIPLES OF ORGANIC CHEMISTRY	(4)
CHE 300	ANALYTICAL CHEMISTRY/CHEMICAL ANALYSIS	(5)

MATHEMATICS TRACK REQUIRED COURSES **17 crs.**

MTH 212	CALCULUS III	(4)
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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

20 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	(4)

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