

DEPARTMENT OF COMPUTER SCIENCE

Professor and Head: Charles B. McCamant

Professor: Homeyer

Associate Professors: Lehmann, Motl

Bachelor of Business Administration

(Computer Science major--130 semester hours)

	Semester Hours
ACADEMIC MAJOR	
Computer Science 1331, 2301, 2311, 2323, 3302, 3341, 4301, 4302, 4312, 4341, and nine advanced hours in computer science	39
Accounting 2301, 2302, 3301	9
Business Administration 1301, 2331, 2345, 4303	12
Finance 3361	3
Management 3301, 3305	6
Marketing 3321	3
OTHER REQUIREMENTS	
Communication 2301	3
Economics 2301, 2302	6
English 1301, 1302, sophomore literature, 3352	12
Government 2301, 2302	6
History 1301, 1302	6
Mathematics (including 2332)	9
Natural Science (two lab sciences: biology, chemistry, geology, physics, physical science)	8
Physical Activity	2
Visual and Performing Arts (art, drama, music) lower division	3
SUPPORTING CONCENTRATION	
(optional for BBA)	0
Must not include courses offered by the Business Administration or Accounting, Economics, and Finance Departments.	
ELECTIVES	
Electives	3
Must not include courses offered by the Business Administration or Accounting, Economics, and Finance Departments.	
The above plan meets all core curriculum and general BBA requirements.	

Bachelor of Science
(Computer Science major--130 semester hours)

	Semester Hours
ACADEMIC MAJOR	
Computer Science 1331, 2301, 2311, 2323, 3302, 3341, 4301, 4302, 4312, 4341, and nine advanced hours in computer science	39
OTHER REQUIREMENTS	
Biology or geology*	8
Chemistry, physical science, or physics (including Physics 3444)*	6-8
Communication 2301	3
English 1301, 1302, sophomore literature, 3351	12
Government 2301, 2302	6
History 1301, 1302	6
Mathematics (including 2332)	9
Physical Activity	1
Social Science (economics, geography, psychology, sociology) lower division	3
Visual and Performing Arts (art, drama, music) lower division	3
SUPPORTING CONCENTRATION	
Supporting Concentration	18
ELECTIVES	
Electives	14-16

The above plan meets all core curriculum and general BS requirements.

Bachelor of Science
(Computer Science major and secondary teacher certification
with mathematics for the second teaching field)**

Students must have been admitted into the Teacher Education Program and must be currently satisfying admission standards before being allowed to enroll in either Education 4322 or 4323.

	Semester Hours
ACADEMIC MAJOR	
Computer Science 1331, 2301, 2311, 2323, 3302, 3341, 4301, 4302, 4312, and 4341	30
OTHER REQUIREMENTS	
Biology or geology*	8
Chemistry, physical science, or physics (including Physics 3444)*	6-8
Communication 2301 or 2331	3
English 1301, 1302, sophomore literature, 3351	12

* At least two of the science courses completed for this degree must include a lab component.

** If a second teaching field other than mathematics is chosen, nine hours of mathematics including Mathematics 2332 must be completed and more than 130 semester hours may be required for the degree.

Government 2301, 2302	6
History 1301, 1302	6
Mathematics (including 2332)*	9
Physical Activity	1
Social Science (economics, geography, psychology, sociology) lower division	3
Visual and Performing Arts (art, dram, mus) lower division	3
PROFESSIONAL EDUCATION	
Education 4321, 4322, 4323, 4630	15
Educational Psychology 3311	3
Reading 4320	3
SECOND TEACHING FIELD*	
Mathematics 1302, 1303, 1321, 2331, 2332, 3301, 3307, 3333, 4322	27
ELECTIVES	
Electives	6

The above plan meets all core curriculum and general BS requirements.

* If a second teaching field other than mathematics is chosen, nine hours of mathematics including Mathematics 2332 must be completed and more than 130 semester hours may be required for the degree.

Secondary Teacher Certification: A student who chooses computer science for a second teaching field must complete the following courses: Computer Science 1331, 2301, 2311, 2323, 3341, 4302, 4341, and 3 advanced hours.

COURSES IN COMPUTER SCIENCE (C S)

1331 Principles of Data Processing (3-0). Basic data processing techniques, data representation schemes, computer concepts, computer components, problem solving techniques, programs and languages designed to familiarize the student with broad concepts and applications of data processing.

2301 Introduction to Computer Science I (3-0). The concepts and properties of algorithms for solving numerical and non-numerical problems. Introduction to computer and programming systems, including the development, debugging, and verification of programs, representation of data, computer characteristics and organization.
Prerequisite: Computer Science 1331.

2311 Computer Organization and Programming (3-0). Basic computer organization with emphasis on machine representation of data and instructions; programming in assembly and machine-oriented languages for real and simulated computers.
Prerequisite: Computer Science 2301.

2323 Introduction to Computer Science II (3-0). Problem solving and program development techniques emphasizing modular design and microcomputer applications including records, strings, and pointers.
Prerequisites: Computer Science 2301.

3302 Introduction to Systems Programming (3-0). Advanced assembly language techniques, including macros, conditional assembly, levels of I/O, and file structures. Evolution of systems programming, assemblers, and the assembly process. Linkers, loaders, and program translation by interpretation and generation.

Prerequisites: Computer Science 2311, 3341.

3324 File Structures (3-0). File organization methods and processing techniques in a high level programming language. Concepts of creating, merging, sorting, and updating sequential, random, and indexed files.

Prerequisite: Computer Science 2311, 2323.

3341 Data Structures (3-0). Study of basic data structures and their applications. Includes linear structures (arrays, lists, stacks, queues) and non-linear structures (trees, graphs). Sequential and linked storage representation methods. Sorting and searching algorithms and techniques of algorithmic analysis.

Prerequisite: Computer Science 2323.

3344 Computer Architecture (3-0). Study of the hardware components of a computer system and survey of various computer architectures. Topics include instruction set design, computer arithmetic, and microprogramming.

Prerequisite: Computer Science 2311.

3390 Java Programming (3-0). Programming concepts and development in the Java language including applications and applets.

Prerequisite: Computer Science 2301.

4301 Algorithmic Languages and Compilers (3-0). Formal description of algorithmic languages, compilation techniques, syntactic analysis, code generation, storage allocation, syntax-directed compilers, compiler-building systems.

Prerequisites: Computer Science 2311, 3341.

4302 Operating Systems (3-0). A study of the design and implementation of operating systems; analysis of system resource management, including the memory, processor, device, and information management functions.

Prerequisites: Computer Science 2311, 3341.

4304 The UNIX Operating System (3-0). Study of the history, fundamentals and use of the UNIX operating system. The kernel, file management and manipulation, utilities, text editing, shell programming, system administration, and the C programming language.

Prerequisite: Computer Science 3302.

4306 Software Design Concepts (3-0). Introduction to the fundamental concepts of computer software development; programming methodology; software reliability; performance and design evaluations, software project management; program development languages, tools and standards.

Prerequisite: Computer Science 3341.

4308 Computer Graphics (3-0). Study of hardware and software found in graphics systems. Implementation of GKS primitives in a language such as Pascal. Line and curve drawing, text generation, transformation methods for two and three dimensional systems, fill algorithms, fractal curves and hidden-line algorithms.

Prerequisites: Computer Science 2323, Mathematics 1321.

4312 Internet Technologies (3-0). Technologies that make up the Internet including servers, clients, protocols, browsers and mechanisms for executable content. Topics include an understanding of how TCP/IP works, the combination of HTTP protocol and HTML to make the World Wide Web, HTML forms and the CGI interface and the use of JavaScript to create dynamic HTTP content on the client side.

Prerequisite: Computer Science 3341.

4314 Client/Server Programming (3-0). Developing client and server applications that work together. A project oriented course in which each student will be expected to design and program both the server and client of at least one application.

Prerequisite: Computer Science 3341.

4316 Visual Programming (3-0). Programming in and for a visual or GUI environment. Event-driven objects including mouse and window events.

Prerequisite: Computer Science 2301.

4341 Data Base Management (3-0). Basic data base concepts, organization, and definitions; data description languages; relational data base concepts and examples; comparison of data base systems.

Prerequisite: Computer Science 2323.

4381 Special Topics in Computer Science (3-0). Contemporary applications and theory in computer science. (May be repeated once for credit when the topics vary.)

Prerequisite: Computer Science 3341.

4393 Research. Individual research problems for superior students majoring in computer science.

Prerequisite: Junior standing.

