

**MATH AND COMPUTER SCIENCE DIVISION  
2001-2003 CATALOG UPDATE  
Changes effective 2002-2003**

**COMPUTER SCIENCE**

**Curriculum Changes:**

**Liberal Studies Program Requirements** 41-62  
**Missouri Statute Requirement** 1-3  
**Required Support** 5-17

MATH 198 Analytical Geometry and Calculus I\*\*

MATH 263 Analytical Geometry and Calculus II

STAT 290 Statistics\*\*

CHEM 120 General Chemistry I\*\* **OR**

PHYS 195 Physics with Calculus I\*\*

\*\*May be used to fulfill Liberal Studies Program Requirements

**Bachelor of Science Requirements** 6-8

MATH 357 Linear Algebra **OR**

MATH 285 Matrix Algebra

One additional course from the following list:

MATH 200 Foundations of Mathematics

MATH 264 Analytic Geometry and Calculus III

CHEM 121 General Chemistry II

PHYS 196 Physics with Calculus II

Any MATH course numbered 300 or above

Any STAT course numbered 300 or above

**MAJOR REQUIREMENTS**

**FOUNDATIONS**

CS 100 Computer Science Seminar 1

CS 180 Foundations of Computer Science I 3

CS 185 Foundations of Computer Science II 3

CS 285 Foundations of Computer Science III 3

CS 310 Data Structures and Algorithms 3

CS 330 Computer Architecture and Organization 3

**LANGUAGE SUPPORT**

CS 250 Systems Programming 3

CS 260 Object-Oriented Programming 3

**ADVANCED COURSES\***

**Area A:** Choose two courses from the following list 6

CS 315 Internet Programming

CS 340 File Processing

CS 360 Systems Analysis and Design

CS 370 Software Engineering

CS 430 Database Systems

**Area B:** Choose one course from the following list 3

CS 390 Operating Systems

- CS 420 Compilers
- CS 470 Networks and Teleprocessing
- Area C:** Choose two courses from the following list      6
- CS 380 Programming Languages
- CS 420 Compilers
- CS 430 Database Systems
- CS 460 Computer Graphics
- CS 480 Artificial Intelligence
- CS 490 Automata Theory and Formal Languages

\***Note:** A course cannot be used to fulfill requirements for more than one of Areas A, B or C above.

**SENIOR SEMINAR**

- CS 495 Senior Computer Science Seminar                      1
- Capstone Experience
- Electives to Total    124

**New Course:**

CS 315 Internet Programming  
3 hours

Teaches programming concepts that are particularly relevant to building large applications for the World Wide Web. This is primarily a programming course, so significant programming experience is required. Possible topics include: HTML, Perl, Javascript, Java applets, servlets, Java Server pages, and XML. Prerequisites: CS 260, CS 310, AND junior status.

**Deleted Course:**

CS 195 FORTRAN Programming

**Other Course Changes:**

CS 180 Foundations of Computer Science I now includes a one-hour lab. Credit hours remain 3.

**MATHEMATICS**

**Curriculum Changes:**

- Liberal Studies Program Requirements**                      **41-62**
- Missouri Statute Requirement**                                      **1-3**
- Required Support**    **15-16**
- A. CS 180 Foundations of Computer Science I                      3
- B. STAT 290 Statistics    3
- C. MATH 198 Analytic Geometry and Calculus I                      5
- D. One course from the following list:
  - PHYS 195 Physics with Calculus I                                      5
  - PHYS 271 Physics for Scientists and Engineers I                      4
  - CHEM 120 General Chemistry I    4

**Note:** Courses listed in B through D which have been approved for Liberal Studies Program requirements may be counted in both areas.

**Bachelor of Arts Requirement** **0-6**  
Intermediate proficiency in ONE foreign language

**Bachelor of Science Requirement** **6**  
Complete six hours from the following areas. These courses **MAY NOT** be used to fulfill a requirement in the Liberal Studies Program or in A through D above:

1. Courses designated CS, BIOL, CHEM, or PHYS which fulfill a major requirement for a bachelor's degree in that major
2. STAT 374, 375, 376, or 378
3. PHRE 342 Symbolic Logic **OR**  
PHRE 382 Philosophy of Mathematics
4. NASC 400 Science in Intellectual History I  
NASC 401 Science in Intellectual History II
5. ECON 300 Intermediate Microeconomics  
ECON 303 Intermediate Macroeconomics  
ECON 304 Mathematical Economics  
ECON 373/406 Econometrics

<b>MAJOR REQUIREMENTS</b>	<b>37-38</b>
Required Mathematics Courses	22-23
MATH 101 Freshman Seminar	1
MATH 263 Analytic Geometry and Calculus II	5
MATH 264 Analytic Geometry and Calculus III	3
MATH 200 Foundations of Mathematics	3
MATH 357 Linear Algebra	3
MATH 451 Algebraic Structures I	3
MATH 461 Advanced Calculus I	3
MATH 498 Senior Seminar	1
Capstone Experience	0-1

**MATHEMATICS ELECTIVES** **15**  
Choose courses totaling 15 credit hours from the following lists with at least one course from List A:

- List A:** MATH 363 College Geometry  
MATH 440 Topology  
MATH 447 Combinatorial Analysis  
MATH 452 Algebraic Structures II  
MATH 454 Theory of Numbers  
MATH 462 Advanced Calculus II  
MATH 465 Differential Geometry  
MATH 467 Logic and Set Theory  
MATH 515 Complex Variables I  
STAT 570 Mathematical Probability and Statistics I
- List B:** MATH 300 Introduction to Numerical Analysis  
MATH 325 Introduction to Operations Research  
MATH 347 Discrete Mathematics  
MATH 364 Vector Analysis  
MATH 365 Ordinary Differential Equations  
MATH 400 Methods of Optimization  
MATH 455 History of Mathematics I  
MATH 456 History of Mathematics II

MATH 464 Higher Geometry  
MATH 511 Numerical Analysis  
MATH 521 Partial Differential Equations  
MATH 530 Topics in Mathematical Modeling  
MATH 564 Advanced Linear Algebra  
STAT 571 Mathematical Probability and Statistics II

Courses offered under the numbers MATH 473, MATH 488, MATH 489, MATH 503, STAT 486, and STAT 487 may substitute in List B with the approval of the mathematics faculty.

Some courses from other disciplines may also substitute in List B. Such courses must be at the 300 level or above, contain a strong mathematical component, and be approved by the mathematics faculty. A student may use at most one course from another discipline in the mathematics major.

[The remainder of the mathematics program remains the same.]

**Newly-Approved Writing-Enhanced Courses:**

MATH 455 History of Mathematics I 3 hours (David Neel)

MATH 456 History of Mathematics II 3 hours (David Neel)

**STATISTICS**

**Newly-Approved Communicative Mode of Inquiry Course:**

STAT 376 Nonparametric Statistics/Sampling 3 hours (Scott Alberts)