COLLEGE OF SCIENCE & MATHEMATICS
MAJOR: COMPUTER SCIENCE
ACADEMIC YEAR: 2013-2014
DEGREE TYPE: B.A. & B.S.
REQUIRED DEGREE CREDITS TO GRADUATE: 122

GENERAL EDUCATION REQUIREMENTS – 40 CREDITS

Lower Division Requirements – 37 Credits

First Year Experience (F) - 1 Credit
UNIV 189 Skills for Academic Success 1 cr
Students transferring in 24 or more credits do not need to take UNIV 189.

Communication (C) - 9 Credits
ENGL 110 College Composition I 3 cr
ENGL 120 College Composition II 3 cr
COMM 110 Fund of Public Speaking 3 cr

Quantitative Reasoning (R) – 3 Credits
Bachelor of Arts
MATH 146 or Applied Calculus I 4 cr
MATH 165 Calculus I
Bachelor of Science
MATH 165 Calculus I 4 cr

Science & Technology (S) - 10 Credits
Bachelor of Arts
CSCI 114 Microcomputer Packages 3 cr
A one-credit lab must be taken as a co-requisite with a general education science/technology course unless the course includes an embedded lab experience equivalent to a one-credit course. Select from current general education courses www.ndsu.edu/registrar/geden/

Bachelor of Science
A one-credit lab must be taken as a co-requisite with a general education science/technology course unless the course includes an embedded lab experience equivalent to a one-credit course. Select from current general education courses www.ndsu.edu/registrar/geden/

Humanities & Fine Arts (A) - 6 Credits
Select from current general education courses www.ndsu.edu/registrar/geden/

Social & Behavioral Sciences (B) - 6 Credits
Select from current general education courses www.ndsu.edu/registrar/geden/

Wellness (W) - 2 Credits
Select from current general education courses www.ndsu.edu/registrar/geden/

Cultural Diversity (D)
Select from current general education courses www.ndsu.edu/registrar/geden/

Global Perspectives (G)
Select from current general education courses www.ndsu.edu/registrar/geden/

Upper Division Requirements - Writing – 3 Credits
ENGL 321 or Writing in the Technical Professions 3 cr
ENGL 324 Writing in the Sciences

B.A. COMPUTER SCIENCE REQUIREMENTS – 53 CREDITS
• A Grade of ‘C’ or better is required for all CSCI courses

Core Courses – 35 Credits
CSCI 159 Computer Science Problem Solving 3 cr
CSCI 160 Computer Science I 4 cr
CSCI 161 Computer Science II 4 cr
CSCI 213 Modern Software Development 3 cr
CSCI 222 Discrete Math 3 cr
CSCI 313 Software Development for Games 3 cr
CSCI 366 Files for Database Systems 3 cr
CSCI 371 Web Scripting Languages 3 cr
CSCI 445* Software Projects: Capstone 3 cr
CSCI 488 Human-Computer Interaction 3 cr
CSCI 489* Social Implications of Computers 3 cr
*CSCI 445 & 489 from the department capstone. Both courses are usually taken during the last spring semester the student is enrolled.

RELATED COURSES – 11 CREDITS
COMM 260 Principles of Internet Web-Based Design 3 cr
COMM 261 Introduction to Web Development 3 cr
STAT 330 Introductory Statistics 3 cr
STAT 331 Regression Analysis 2 cr

OTHER COURSES – 7 CREDITS
Select these seven credits from the following areas:
• Science (not CSCI),
• Engineering (not ENGR 311 or 312),
• Math (higher than 147, but not 165) or
• Statistics (not 330 or 331)

B.A. DEGREE REQUIREMENTS – UP TO 16 CREDITS TO REACH 122

B.S. COMPUTER SCIENCE REQUIREMENTS – 53 CREDITS
• A Grade of ‘C’ or better is required for all CSCI courses

Core Courses – 44 Credits
CSCI 160 Computer Science I 4 cr
CSCI 161 Computer Science II 4 cr
CSCI 213 Modern Software Development 3 cr
CSCI 222 Discrete Mathematics 3 cr
CSCI 313 Software Development for Games 3 cr
CSCI 336 Theoretical Computer Science II 3 cr
CSCI 366 Files for Database Systems 3 cr
CSCI 372 Comparative Programming Languages 3 cr
CSCI 374 Computer Organization & Architecture 3 cr
CSCI 415 Networking and Parallel Computation 3 cr
CSCI 445* Software Projects: Capstone 3 cr
CSCI 467 Algorithm Analysis 3 cr
CSCI 474 Operating Systems Concepts 3 cr
CSCI 489* Social Implications of Computers 3 cr
*CSCI 445 & 489 from the department capstone. Both courses are usually taken during the last spring semester the student is enrolled.

Degree requirements continued on page two.
**Computer Science Electives - 9 Credits**

3 courses from the categories listed below. No more than 2 courses may come from any single category.

### Software Engineering:
- CSCI 413 Principles of Software Engineering 3 cr
- CSCI 477 Object-Oriented Systems 3 cr
- CSCI 488 Human-Computer Interaction 3 cr

### Large Systems:
- CSCI 426 Introduction to Artificial Intelligence 3 cr
- CSCI 458 Microcomputer Graphics 3 cr
- CSCI 459 Foundations of Computer Networks 3 cr

### Systems Modeling:
- CSCI 418 Simulation Models 3 cr
- CSCI 453 Linear Programming and Network Flows 3 cr
- CSCI 454 Operations Research 3 cr

### Emerging Areas:
- CSCI 345 Topics in Personal Computers 3 cr
- CSCI 469 Network Security 3 cr
- CSCI 473 Foundations of the Digital Enterprise 3 cr
- CSCI 476 Computer Forensics 3 cr
- CSCI 479 Introduction to Data Mining 3 cr

**RELATED REQUIRED COURSES – 21-23 CREDITS**

### Mathematics and Statistics – 10 Credits
- MATH 166 Calculus II 4 cr
- STAT 367 Probability 3 cr
- STAT 368 Statistics 3 cr

### One Year Lab Science (Choose One Sequence) – 8-10 Credits

* Fulfills Gen Ed Req.  **Fulfills Gen Ed & Global Perspective Req.
- BIOL 126/L & Human Biology/Lab & * 3/1 cr
- CHEM 121/L & General Chemistry I/Lab & * 3/1 cr
- CHEM 122/L General Chemistry II/Lab* 3/1 cr
- CHEM 150/160 & Principles of Chemistry I/Lab & * 3/1 cr
- GEOL 105/L & Physical Geology/Lab & ** 3/1 cr
- GEOL 106/L The Earth Through Time/Lab** 3/1 cr
- PHYS 211/L & College Physics I/Lab & * 3/1 cr
- PHYS 212/L College Physics II/Lab* 3/1 cr
- PHYS 251/L & University Physics I/Lab & * 4/1 cr
- PHYS 252/L University Physics II/Lab* 4/1 cr

### Additional Science Course – 3 Credits:
One additional science course that satisfies general education requirements

**B.S. DEGREE REQUIREMENTS – UP TO 11 CREDITS TO REACH 122**

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**COLLEGE REQUIREMENTS & NOTES:**
- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.

**Bachelor of Science (BS) Degree** – An additional 9 credits in Humanities or Social Sciences*

**Bachelor of Arts (BA) Degree** – An additional 12 credits Humanities and Social Sciences* and proficiency at the second year level in a modern foreign language.

*Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GERO, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student's major.