

**NDSU** NORTH DAKOTA  
STATE UNIVERSITY  
**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
	165	Calculus I	

**Bachelor of Science**

MATH	165	Calculus I	4 cr
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Science & Technology (S) - 10 Credits

**Bachelor of Arts**

CSCI	114	Microcomputer Packages	3 cr
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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/gened/](http://www.ndsu.edu/registrar/gened/)

**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/gened/](http://www.ndsu.edu/registrar/gened/)

Humanities & Fine Arts (A) - 6 Credits

Select from current general education courses [www.ndsu.edu/registrar/gened/](http://www.ndsu.edu/registrar/gened/)

Social & Behavioral Sciences (B) - 6 Credits

Select from current general education courses [www.ndsu.edu/registrar/gened/](http://www.ndsu.edu/registrar/gened/)

Wellness (W) - 2 Credits

Select from current general education courses [www.ndsu.edu/registrar/gened/](http://www.ndsu.edu/registrar/gened/)

Cultural Diversity (D)

Select from current general education courses [www.ndsu.edu/registrar/gened/](http://www.ndsu.edu/registrar/gened/)

Global Perspectives (G)

Select from current general education courses [www.ndsu.edu/registrar/gened/](http://www.ndsu.edu/registrar/gened/)

**Upper Division Requirements - Writing – 3 Credits**

ENGL	321 or	Writing in the Technical Professions	3 cr
	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
	220/L Human Anatomy & Physiology/Lab*	3/1 cr
CHEM	121/L & General Chemistry I/Lab &*	3/1 cr
	122/L General Chemistry II/Lab*	3/1 cr
CHEM	150/160 & Principles of Chemistry I/Lab &*	3/1 cr
	151/161 Principles of Chemistry II/Lab*	3/1 cr
GEOL	105/L & Physical Geology/Lab &**	3/1 cr
	106/L The Earth Through Time/Lab**	3/1 cr
PHYS	211/L & College Physics I/Lab &*	3/1 cr
	212/L College Physics II/Lab*	3/1 cr
PHYS	251/L & University Physics I/Lab &*	4/1 cr
	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****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, GEOG, GERM, 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.