### 2019 COMPUTER SCIENCE FLOW CHART

#### Minimum of 120 Credits

**Math Core (30 credits)**
- **MATH 165 Calculus I**: 4 Cr/C- or Better
- **MATH 166 Calculus II**: 4 Cr/C- or Better
- **MATH 230 Discrete Computational Structures**: (Pre-Req C- in Math 165 and ComS 227; Engl 150), 3 Cr/C- or Better
- **MATH 311 Algorithms**: (Pre-Req C- in ComS 228; Math 166, ComS 230 or CprE 310, Engl 150), 3 Cr/C- or Better
- **MATH 312 Introduction to Computer Architecture & Machine level programming**: (Pre-Req C- in ComS 228 and Math 165; ComS 230 or CprE 281, Engl 250), 3 Cr/C- or Better

**Computer Science Core (48 credits)**
- **Com S 127 Introduction to Programming for Problems Solving**: Elective Course - 4 Cr
- **Com S 227 Introduction to Object-Oriented Programming, JAVA**: (Pre-Req placement into Math 243 or higher), 4 Cr/C- or Better
- **Com S 228 Introduction to Data Structures, JAVA**: (Pre-Req C- in 227, Cr/E Math 165), 3 Cr/C- or Better
- **Com S 309 Software Development Practices**: (Pre-Req C- in ComS 228 and Math 165), 3 Cr/C- or Better
- **Com S 320 Introduction to Operating Systems**: (Pre-Req C- in Math 243 and ComS 228), 3 Cr/C- or Better
- **Com S 321 Introduction to Computer Architecture & Machine level programming**: (Pre-Req C- in ComS 228 and Math 165; ComS 230 or CprE 281, Engl 250), 3 Cr/C- or Better
- **Com S 323 Advanced Prog. Techniques, C++**: (Pre-Req C- in ComS 228 and Math 165), 3 Cr/C- or Better
- **Com S 324 Introduction to Computer Science**: 3 Cr/C- or Better

**Social Sciences (3 Cr)**
- **ENGL 150 (If English ACT 24 or higher, placement into English 250)**: 3 Cr/C- or Better prior to 2017 catalog

**Arts & Humanities (3 Cr)**
- **Elective or World Language**: 3 Cr/C- or Better

**Statistics (3 Cr)**
- **Elective or Public Speaking**: 3 Cr/C- or Better

**Elective Courses (9 Cr)**
- **Elective or Philosophy of Technology**: 3 Cr/C- or Better

**Elective Courses** (Any course that is not remedial (can use minor or second major courses) Only needed to meet 120 Cr total)
- **Elective Courses (6 credits)**
  - **ENGL 302/305/309/314**: 3 Cr/C- or Better
  - **Arts & Hum**: 3 Cr/C- or Better
  - **Elective Courses**: 3 Cr/C- or Better

## Requirements

### World Language: 1 year at the college level or 3 years at high school.

### Arts and Humanities – 12 Cr
1. **Phil 343 – 3 Cr**
2. **Select an additional 9 Cr from LAS approved list on website and degree audit.**

### Social Sciences – 9 Cr
Select Credits from the LAS approved list on website and degree audit.

### Science Sequence Options

#### 300 level options
- **Com S 300/400 – 15 credits (Min of 6 credits at 400 level)**

#### 400 level options (6 credits)

**Com S 414 is not an elective option**

### Graduation Requirement
8 credits from Computer Science must be at the 300+ level courses with a grade of “C” or better from ISU.

Transfer Students must have at least 15.0 credits at 300+ level or above in Com S courses while in residence at ISU.

Last 32 Credits must be taken at Iowa State University. Adviser can waive 6 of the last 32 credits taken at Iowa State.