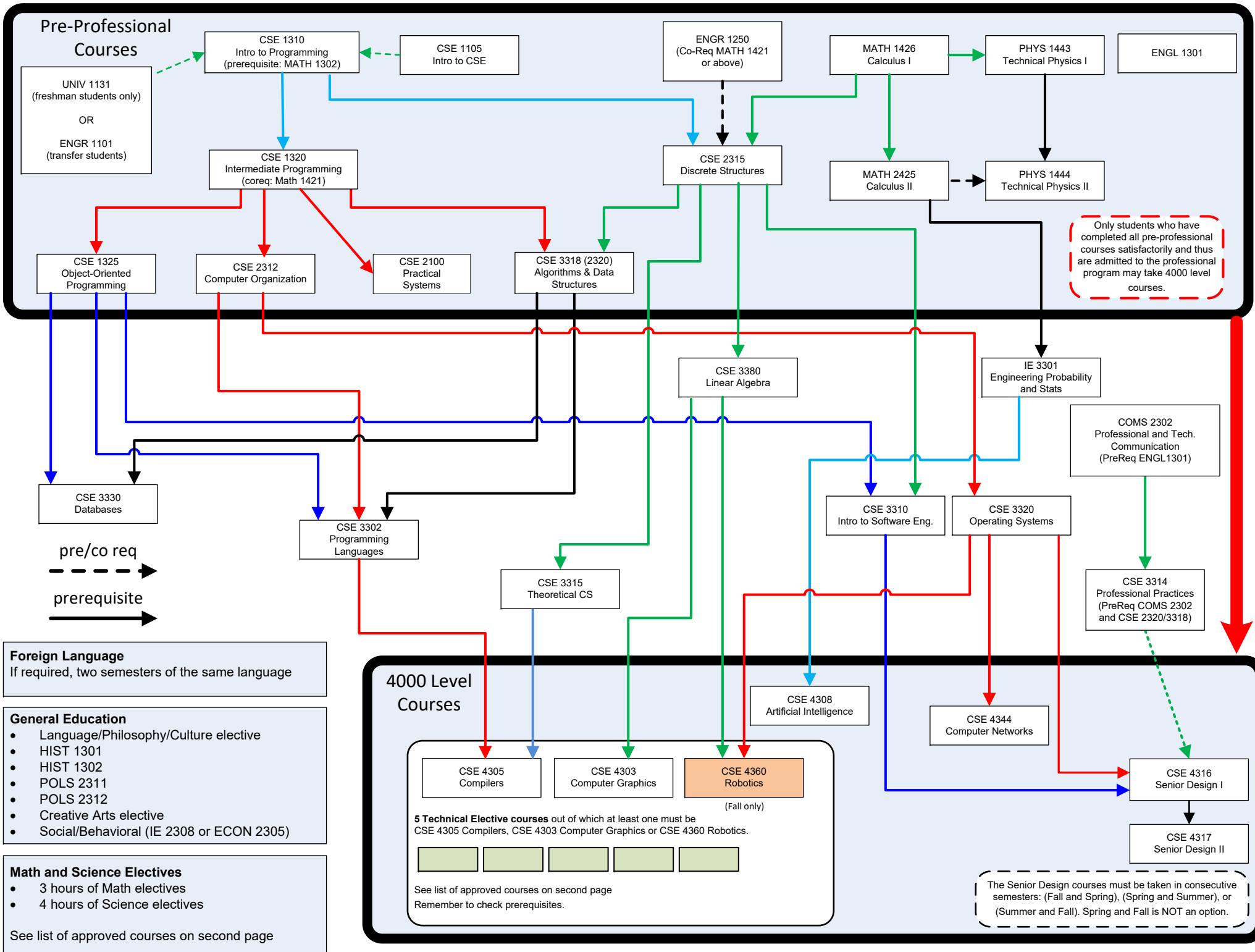


# BS in Computer Science (BSCS), 2018-2019 Catalog



## Pre-Professional Courses

UNIV 1131  
(freshman students only)  
OR  
ENGR 1101  
(transfer students)

CSE 1310  
Intro to Programming  
(prerequisite: MATH 1302)

CSE 1105  
Intro to CSE

ENGR 1250  
(Co-Req MATH 1421  
or above)

MATH 1426  
Calculus I

PHYS 1443  
Technical Physics I

ENGL 1301

CSE 1320  
Intermediate Programming  
(coreq: Math 1421)

CSE 2315  
Discrete Structures

MATH 2425  
Calculus II

PHYS 1444  
Technical Physics II

Only students who have completed all pre-professional courses satisfactorily and thus are admitted to the professional program may take 4000 level courses.

CSE 1325  
Object-Oriented Programming

CSE 2312  
Computer Organization

CSE 2100  
Practical Systems

CSE 3318 (2320)  
Algorithms & Data Structures

CSE 3380  
Linear Algebra

IE 3301  
Engineering Probability and Stats

COMS 2302  
Professional and Tech. Communication  
(PreReq ENGL1301)

CSE 3330  
Databases

CSE 3302  
Programming Languages

CSE 3315  
Theoretical CS

CSE 3310  
Intro to Software Eng.

CSE 3320  
Operating Systems

CSE 3314  
Professional Practices  
(PreReq COMS 2302 and CSE 2320/3318)

pre/co req  
----->  
prerequisite  
—————>

**Foreign Language**  
If required, two semesters of the same language

**General Education**

- Language/Philosophy/Culture elective
- HIST 1301
- HIST 1302
- POLS 2311
- POLS 2312
- Creative Arts elective
- Social/Behavioral (IE 2308 or ECON 2305)

**Math and Science Electives**

- 3 hours of Math electives
- 4 hours of Science electives

See list of approved courses on second page

## 4000 Level Courses

CSE 4305  
Compilers

CSE 4303  
Computer Graphics

CSE 4360  
Robotics  
(Fall only)

**5 Technical Elective courses** out of which at least one must be CSE 4305 Compilers, CSE 4303 Computer Graphics or CSE 4360 Robotics.



See list of approved courses on second page  
Remember to check prerequisites.

CSE 4308  
Artificial Intelligence

CSE 4344  
Computer Networks

CSE 4316  
Senior Design I

CSE 4317  
Senior Design II

The Senior Design courses must be taken in consecutive semesters: (Fall and Spring), (Spring and Summer), or (Summer and Fall). Spring and Fall is NOT an option.

## CS 2018-2019 Classes

### Mathematics Electives

- MATH 2326 - Calculus III (Fall, Spring, & Summer)
- CSE 4345 - Computational Methods (Fall & Spring)

### Science Electives

- BIOL 1441 – Cell and Molecular Biology (Fall, Spring, & Summer)
- CHEM 1441 – General Chemistry (Fall, Spring, & Summer)
- CHEM 1465 – Chemistry for Engineers (Fall, Spring, & Summer)
- PHYS 3313 & PHYS 3183 – Intro to Modern Physics (Fall & Spring)

### Technical Electives

- CSE 4303 – Computer Graphics  
prereqs: CSE 3318 and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4305 – Compilers  
prereqs: CSE 3302 and CSE 3315 (Fall & Spring)
- CSE 4309 – Fundamentals of Machine Learning  
prereqs: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall only)
- CSE 4310 - Fundamentals of Computer Vision  
prereqs: CSE 3318, IE 3301 or MATH 3313, CSE 3380 or MATH 3330 (Spring only)
- CSE 4321 – Software Testing and Maintenance  
prereqs: CSE 3310 (Fall, Spring, & Summer)
- CSE 4322 – Software Project Management  
prereqs: CSE 3310 (Fall & Spring)
- CSE 4323 – Quantitative Computer Architecture  
prereqs: CSE 3320 (Fall & Spring)
- CSE 4331 – Database Implementation and Theory  
prereqs: CSE 3330 (Fall, Spring, & Summer)
- CSE 4334 – Datamining  
prereqs: IE 3301 or MATH 3313 and coreq: CSE 3330 (Fall & Spring)
- CSE 4340 – Fundamentals of Wireless Networks  
prereqs: CSE 4344 or CSE 4352 (Fluctuates)
- CSE 4345 – Computational Methods  
prereqs: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4351 – Parallel Processing  
prereqs: CSE 3320 (Fall & Spring)
- CSE 4360 - Autonomous Robot Design and Programming  
prereqs: CSE 3318, CSE 3320, and CSE 3380 or MATH 3330 (Fall only)
- CSE 4361 – Software Design Patterns  
prereqs: CSE 3311 (Fall & Spring)
- CSE 4378 – Intro to Unmanned Vehicles  
prereqs: Department consent (Fall only)

- CSE 4379 – Unmanned Vehicles Development  
prereqs: B or better in CSE 4378 (Spring only)
- CSE 4380 – Information Security  
prereqs: CSE 3320 (Fall & Spring)
- CSE 4381 – Information Security 2  
prereqs: CSE 3320 and coreq CSE 4344 (Fall & Spring)
- CSE 4382 – Secure Programming  
prereqs: CSE 3320 (Fall & Spring)
- CSE 3311 – Object-orientated Software Engineering  
prereqs: CSE 1325, CSE 3318, and CSE 3310 (Fall, Spring, & Summer)
- CSE 3313 – Signal Processing  
prereqs: CSE 3318 and CSE 3380 or MATH 3330 (Fall & Spring)
- IE 3315 – Operations Research I  
prereqs: coreq MATH 2326 (Fall & Spring)

### Language, Philosophy & Culture Electives

- ANTHROPOLOGY (ANTH) 2322
- ARABIC (ARAB) 2310, 2314
- ARCHITECTURE (ARCH) 2300
- ART & ART HISTORY (ART) 1317
- American Sign Lang. (ASL) 2314
- CHINESE (CHIN) 2310, 2314
- CLASSICS (CLAS) 1300
- ENGLISH (ENGL) 2303, 2309, 2319, 2329
- FRENCH (FREN) 2310, 2314
- GERMAN (GERM) 2310, 2314
- GLOBAL (GLOBAL) 2301
- GREEK (GREK) 2314
- HISTORY (HIST) 2377
- INTERDISCIPLINARY STUDIES (INTS) 1310
- KOREAN (KORE) 2310, 2314
- LATIN (LATN) 2314
- LINGUISTICS (LING) 2371
- MEXICAN AMERICAN STUDIES (MAS) 2300
- PHILOSOPHY (PHIL) 1304, 2300, 2314
- RUSSIAN (RUSS) 2310, 2314
- SOCIOLOGY (SOCL) 1310
- SPANISH (SPAN) 2310, 2314, 2315
- WOMEN'S & GENDER STUDIES (WOMS) 2310

### Creative Arts Electives

- ARCHITECTURE (ARCH) 1301
- ART & ART HISTORY (ART) 1301, 1309, 1310
- DANCE (DNCE) 1300
- ENGLISH (ENGL) 1375
- MUSIC (MUSI) 1300, 1302, 1304, 2300, 2301
- THEATER ARTS (THEA) 1342, 1343

### History Electives

- HIST 1301
- HIST 1302
- HIST 1331
- HIST 1332