BS in Computer Science (BSCS), 2017-2018 Catalog

Pre-Professional Courses

CSE 1310 Intro to Programming (pre-requisite: MATH 1302)
CSE 1105 Intro to CSE
CSE 1300 (co-requisite MATH 1421 or above)
MATH 1426 Calculus I
PHYS 1443 Technical Physics I
ENGL 1301

CSE 1320 Intermediate Programming (co-requisite: Math 1421)
CSE 2100 Practical Systems
CSE 2320 Algorithms & Data Structures
MATH 2425 Calculus II
PHYS 1444 Technical Physics II

CSE 1325 Object-Oriented Programming
CSE 2312 Computer Organization
CSE 2320 Programming Languages
CSE 2300 Intro to CSE

CSE 3300 Databases
CSE 3302 Theoretical CS
CSE 3380 Linear Algebra
IE 3301 Engineering Probability and Stats

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 hour Math elective
- 4 hour Science elective

See list of approved courses on second page.

Pre/co-requisite
Pre-requisite

4000 Level Courses

CSE 4305 Compilers
CSE 4303 Computer Graphics
CSE 4360 Robotics

CSE 4308 Artificial Intelligence
CSE 4344 Computer Networks
CSE 4317 Senior Design II
CSE 4316 Senior Design I

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

5 Technical Elective courses
See list of approved courses on second page.
Remember to check pre-requisites.

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

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.
Mathematics Electives

- MATH 2326 - Calculus III (Fall, Spring, & Summer) pre-req: MATH 2425
- CSE 4345 - Computational Methods (Fall & Spring) pre-reqs: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330

Science Electives

- BIOL 1441 – Biology I for Science Majors (Fall, Spring, & Summer) pre-req: None
- CHEM 1441 – General Chemistry (Fall, Spring, & Summer) pre-req: MATH 1302
- CHEM 1465 – Chemistry for Engineers (Fall, Spring, & Summer) co-req: MATH 1421
- PHYS 3313 & PHYS 3183 – Intro to Modern Physics (Fall & Spring) pre-req: MATH 2425 and PHYS 1441

Technical Electives

- CSE 4303 – Computer Graphics
  pre-reqs: CSE 2320 and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4305 – Compilers
  pre-reqs: CSE 3302 and CSE 3315 (Fall & Spring)
- CSE 4309 – Fundamentals of Machine Learning
  pre-reqs: CSE 3318, MATH 2326 or the consent of the instructor, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall only)
- CSE 4310 – Fundamentals of Computer Vision
  pre-reqs: CSE 2320, IE 3301 or MATH 3313, CSE 3380 or MATH 3330 (Fall only)
- CSE 4321 – Software Testing and Maintenance
  pre-reqs: CSE 3310 (Fall, Spring, & Summer)
- CSE 4322 – Software Project Management
  pre-reqs: CSE 3310 (Fall & Spring)
- CSE 4323 – Quantitative Computer Architecture
  pre-reqs: CSE 3320 (Fall & Spring)
- CSE 4331 – Database Implementation and Theory
  pre-reqs: CSE 3330 (Fall & Spring)
- CSE 4334 – Data Mining
  pre-reqs: IE 3301 or MATH 3313 and co-req: CSE 3330 (Fall & Spring)
- CSE 4340 – Fundamentals of Wireless Networks
  pre-reqs: CSE 4344 or CSE 4352 (Fluctuates)
- CSE 4345 – Computational Methods
  pre-reqs: CSE 2320, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4351 – Parallel Processing
  pre-reqs: CSE 3320 (Fall & Spring)
- CSE 4360 – Autonomous Robot Design and Programming
  pre-reqs: CSE 2320, CSE 3320, and CSE 3380 or MATH 3330 (Fall only)
- CSE 4361 – Software Design Patterns
  pre-reqs: CSE 3311 (Fall & Spring)
- CSE 4373 – General Purpose GPU Programming
  pre-reqs: CSE 3320 (Fall only)
- CSE 4376 – Digital Communication Systems
  pre-reqs: CSE 3313 (Fall only)
- CSE 4378 – Intro to Unmanned Vehicles
  pre-reqs: Department consent (Fall only)
- CSE 4379 – Unmanned Vehicles Development
  pre-reqs: B or better in CSE 4378 (Spring only)
- CSE 4380 – Information Security
  pre-reqs: CSE 3320 (Fall & Spring)
- CSE 4381 – Information Security 2
  pre-reqs: CSE 3320 and co-req CSE 4344 (Fall & Spring)
- CSE 4382 – Secure Programming
  pre-reqs: CSE 3320 (Fall & Spring)
- CSE 3311 – Object-orientated Software Engineering
  pre-reqs: CSE 1325, CSE 2320, and CSE 3310 (Fall, Spring, & Summer)
- CSE 3313 – Signal Processing
  pre-reqs: CSE 2320 and CSE 3380 or MATH 3330 (Fall & Spring)
- ENGR 4302 – Engineering Entrepreneurship
  pre-reqs: Admitted to an engineering professional program (Fall only)
- IE 3315 – Operations Research I
  pre-reqs: co-req 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 LANGUAGE (ASL) 2314
- CHINESE (CHIN) 2310, 2314
- CLASSICS (CLAS) 1300
- INTRO TO LGBTQ+ STUDIES (DIVR) 2315
- ENGLISH (ENGL) 1350, 2303, 2309, 2319, 2329
- FRENCH (FREN) 2310, 2314
- GERMAN (GERM) 2310, 2314
- GLOBAL (GLOBAL) 2301
- GREEK (GREK) 2314
- HISTORY (HIST) 2377
- KOREAN (KORE) 2310, 2314
- LATIN (LATN) 2314
- LINGUISTICS (LING) 2371
- MEXICAN AMERICAN STUDIES (MAS) 2300
- PHILOSOPHY (PHIL) 1304, 2300
- PORTUGUESE (PORT) 2314
- RUSSIAN (RUSS) 2310, 2314
- INTRO TO POPULAR CULTURE (SOCI/INTS) 1310
- SPANISH (SPAN) 2310, 2314, 2315
- WOMEN'S STUDIES (WOMS) 2310, 2315

Creative Arts Electives

- ARCHITECTURE (ARCH) 1301
- ART & ART HISTORY (ART) 1301, 1309, 1310
- DANCE (DNCE) 1300
- ENGLISH (ENGL) 1375
- PHOTOJOURNALISM I (JOUR) 2340
- MUSIC (MUSI) 1300, 1302, 1304, 2300, 2301
- THEATER ARTS (THEA) 1342, 1343

History Electives

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