

**Sample Electrical and Computer Engineering (ECE)  
and Computer Science (COMPSCI) Dual Major**  
(Program *without* Any AP Credits)

<b>FIRST YEAR</b>	
<b>Fall Semester</b>	<b>Spring Semester</b>
1. WRITING 20/SS-H 1	1. SS-H 1/WRITING 20
2. CHEM 31L, Core Concepts in Chemistry*	2. PHYSICS 61L, Mechanics
3. MATH 31, Calculus I	3. MATH 32, Calculus II
4. EGR 53L, Computational Methods in Engineering	4. ECE27L, Fundamentals of ECE
<b>SOPHOMORE YEAR</b>	
<b>Fall Semester</b>	<b>Spring Semester</b>
1. COMPSCI 100E, Program Design & Analysis II	1. ECE 51L, Microelectronic Devices & Circuits
2. ECE 52L, Digital Systems	2. ECE 54L, Signals & Systems
3. MATH 103, Intermediate Calculus	3. MATH 107, Linear Algebra & Differential Equations
4. PHYSICS 62L, Electricity, Magnetism & Optics	4. ECE 152, Computer Architecture
5. SS-H 2	
<b>JUNIOR YEAR</b>	
<b>Fall Semester</b>	<b>Spring Semester</b>
1. ECE Digital-Systems Elective*	1. ECE 53L, Electromagnetic Fields
2. COMPSCI 110 (C-L: ECE 153), Operating Systems	2. COMPSCI Elective
3. MATH 108, Ordinary & Partial Differential Equations	3. STA 113, Probability & Statistics or MATH 135, Probability or ECE 255, Probability for ECEs*
4. COMPSCI 108, Software Design & Implementation	4. SS-H 3
5. Free Elective	
<b>SENIOR YEAR</b>	
<b>Fall Semester</b>	<b>Spring Semester</b>
1. ECE Elective or ECE/COMPSCI Design Elective	1. ECE/COMPSCI Design Elective or ECE Elective
2. COMPSCI Elective	2. BIOLOGY 101L, 102L, 144 or 147*
3. ECE Concentration Elective or ECE Elective*	3. ECE Elective or ECE Concentration Elective*
4. SS-H 4	4. SS-H 5

**\*See NOTES for explanations.**

## NOTES:

- **WRITING 20:** University Writing Program, required in first year.
- **CHEM 31L:** AP credit CHEM 19 is also acceptable.
- **PHYSICS 61L & 62L:** Matriculating students who have AP credit for PHYSICS 61L (but not 62L) take PHYSICS 62L; those who have AP credit for PHYSICS 61L and 62L take PHYSICS 63L; and international students who have IPCs for GCE A-level physics take PHYSICS 63L or 143.
- **BIOLOGY 101L, 102L, 144 or 147:** AP credit BIOLOGY 19 is also acceptable.
- **STA 113** is recommended but students may substitute MATH 135 or ECE 255.
- **SS-H:** Social Sciences and Humanities, 5 required semester-course electives, appropriately distributed.
- **Digital System Elective:** One course from the Digital System Area in the list of [ECE Approved Concentration Areas](#) electives.
- **COMPSCI Elective:** A total of five COMPSCI courses is required for the double major: COMPSCI 100E; COMPSCI 108; COMPSCI 110; one from among COMPSCI 130, 140 and 150; and any other elective course at or above the 100 level.
- **ECE Concentration Elective:** One course selected from the set approved for the ECE program is needed to complete the four-course ECE Concentration requirement and the additional ECE-COMPSCI dual major requirements. Three courses from Digital Systems are built into the illustrated program (ECE 152, 153 and the ECE Digital Systems Elective), so the ECE Concentration Elective must be from outside the Digital Systems area.
- **ECE Elective:** Any ECE course at the 100 level or above except ECE 148L, which latter may be taken as a Free Elective.
- **Approved Design Elective:** Approved Electrical Engineering Design Elective, required in Junior or Senior year. Currently ECE 135, 154, 251, and 261 are approved for this dual major. The same course may not be used as a required Concentration Elective, a required ECE or COMSCI Elective, or a required Design Elective.
- **Independent Study:** Accepted for up to two of the Elective ECE Courses and for any of the Free Electives, but not for any other required course in the dual-major program. Independent Study and Undergraduate Research are encouraged for qualified students, and required for Graduation with Departmental Distinction, but may require overload or summer study to fit into the dual-major program. A course overload is not recommended during the first year.
- **Free Electives:** A Free Elective is any Duke course counting toward the BSE degree beyond the specific courses required for the dual major. Additional Free Electives, increased flexibility for Study Abroad or for Independent Study could result, for example, from AP credit in mathematics (e. g., MATH 31 and/or 32), from AP credit for SS-H courses (see the SS-H Note), from additional program overload (5 or more courses in a semester), or from summer courses. Overload is not recommended during the First Year.

