

**Sample Electrical and Computer Engineering (ECE)  
and Physics (PHYSICS) Dual Major**  
(Program with one AP Math Credit and one SS-H AP Credit)

<b>FIRST YEAR</b>	
Fall Semester	Spring Semester
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 32, Calculus II	3. MATH 103, Intermediate Calculus
4. EGR 53L, Computational Methods in Engineering	4. ECE27L, Fundamentals of ECE
<b>SOPHOMORE YEAR</b>	
Fall Semester	Spring Semester
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 107, Linear Algebra & Differential Equations	3. MATH 108, Ordinary & Partial Differential Equations
4. PHYSICS 62L, Electricity, Magnetism & Optics	4. PHYSICS 181, Intermediate Mechanics
5. SS-H 2	
<b>JUNIOR YEAR</b>	
Fall Semester	Spring Semester
1. ECE 53L, Electromagnetic Fields	1. STA 113, Probability & Statistics, or MATH 135, Probability, or ECE 255, Probability for ECEs (see NOTE)
2. ECE Concentration Elective (1)	2. ECE Concentration Elective (2)
3. PHYSICS 143L, Optics & Modern Physics	3. PHYSICS Elective
4. PHYSICS 182, Electricity & Magnetism	4. BIOLOGY 101L, 102I, 144 or 147
<b>SENIOR YEAR</b>	
Fall Semester	Spring Semester
1. ECE Concentration Elective (3)	1. ECE Concentration Elective (4)
2. ECE Elective or Approved ECE Design Elective	2. Approved ECE Design Elective or ECE Elective
3. SS-H 4	3. ECE 176, Thermal Physics
4. PHYSICS 211, Quantum Mechanics I	4. PHYSICS 212, Quantum Mechanics II
5. PHYSICS 217S, Advanced Physics Laboratory and Seminar	

## NOTES:

- **Advanced Placement Assumptions:** This program assumes AP credit for MATH 31 and for one Social Sciences – Humanities (SS-H) courses, in order to have no more than three 5-course semesters. Other combinations of AP credit are possible with two (vs. one) AP credits in mathematics (for MATH 31 & 32), more than one SS-H AP credit, and/or AP credit in chemistry (CHEM 19 for CHEM 21). For appropriate adjustments in schedule please consult with your faculty advisor.
- **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 credit for the equivalent of PHYSICS 61L & 62L take PHYSICS 143L and consult with the PHYSICS DUS about a substitute for PHYSICS 143L in the Junior-year Fall schedule above.
- **BIOLOGY 101I, 102I, 144 or 147:** AP credit BIOLOGY 19 is also acceptable.
- **SS-H:** Social Sciences and Humanities, 5 required semester-course electives, appropriately distributed.
- **STA 113:** STA 113 *is recommended* but students may substitute MATH 135 or ECE 255.
- **ECE Concentration Elective:** Four courses selected from the set approved for the ECE program. Selections must span at least two Concentration Areas with at least two courses in one area.
- **ECE Elective:** Any ECE course at 100 level or above except 148L, which latter may be taken as a general elective.
- **PHYSICS Elective:** Any PHYSICS course at the 100 level or above except PHYSICS 171L, which is covered in the required courses ECE 27L and ECE 51L, and PHYSICS 230, which for the PHYSICS major is considered to be a mathematics course.
- **Approved Design Elective:** Approved Electrical Engineering Design Elective, required in Senior year (or in Junior year for students with *senior status*). Currently ECE 123,135, 154, 164, 251, and 261 are approved. The same course may not be used as a required Concentration Elective, a required ECE Elective, or a required ECE 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 ECE Program.