### Mathematics and Science Requirement

<table>
<thead>
<tr>
<th>Dept</th>
<th>Course</th>
<th>Title</th>
<th>Transfer/AP Approval by SoE</th>
<th>Unit</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mathematics (26 units minimum)</strong></td>
<td>MATH 19</td>
<td>Calculus (see note 1)</td>
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<td>MATH 20</td>
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<td>MATH 21</td>
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<tr>
<td>CS 103</td>
<td>Mathematical Foundations of Computing</td>
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<tr>
<td>CS 109</td>
<td>Introduction to Probability for Computer Scientists</td>
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<tr>
<td><strong>Plus two electives (see note 2)</strong></td>
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<tr>
<td><strong>Mathematics Unit Total (26 units minimum)</strong></td>
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<tr>
<td><strong>Science (11 units minimum)</strong></td>
<td>PHYS 41</td>
<td>Mechanics (or PHYS 21 or 61)</td>
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<tr>
<td>PHYS 43</td>
<td>Electricity and Magnetism (or PHYS 23 or 63)</td>
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<tr>
<td>Elective (see note 3)</td>
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<tr>
<td><strong>Science Unit Total (11 units minimum)</strong></td>
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<tr>
<td><strong>Technology in Society Requirement</strong> (1 course req'd from Approved TiS list at ughb.stanford.edu the year taken; see note 6)</td>
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<tr>
<td><strong>Engineering Fundamentals (10 units minimum)</strong></td>
<td>CS 106B</td>
<td>Programming Abstractions</td>
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<tr>
<td>ENGR 40M</td>
<td>An Intro to Making: What is EE?</td>
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<tr>
<td><strong>Engineering Fundamentals Total (10 units minimum)</strong></td>
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</tbody>
</table>

### NOTES

1. All courses listed on this form can be included under only one category. There is no double-counting.
2. All courses listed on this form must be taken for a letter grade except courses taken Spring 2019-20, and Autumn 2020-21 through Summer 2020-21.
3. Minimum Grade Point Average (GPA) for all courses in ENGR Fundamentals and CS Core, Depth, and Senior Project (combined) is 2.0.
4. Students without prior programming experience should first take CS106A. The major otherwise requires at most 95 units, so even with the BSCS major adheres to the university's 100-unit limit.
5. Transfer and AP credits in Math, Science, Fundamentals, & TIS must be approved by the SoE Dean's Office. Transfer credits in Computer Science Core, Depth, and Senior Project must be approved by the Computer Science undergraduate program office.
6. Courses must be taken for the number of units on the Program Sheet. CS 103, 106B/X, 107, 109, 110, and 161 must be taken for 5 units.
7. Up to 10 units AP credit (with placement into MATH 51/CME 100) may be used. AP must be approved by SoE.
8. Math electives: Math 51, 52, 53, 104, 107, 108, 109, 110, 113; CS 157, 205L; PHIL 151; CME 100, 102, 104; ENGR 108 (or CME 103 or EE 103).
9. Restrictions: CS 157+ Phil 151 may not be used in combination to satisfy the Math electives requirement. Students who have taken both Math 51 & 52 may not count CME 100 as an elective.
10. Any course of 3 or more units from the SoE Science List (see Courses page at ughb.stanford.edu), PSYCH 30, or AP Chemistry may be used. All AP credit must be approved by the SoE; see AP page https://ughb.stanford.edu/transfers-ap-exceptions in UGHB for approval process.
## CS Artificial Intelligence Track Program Sheet (continued)

**AI Track Core, Depth, and Senior Project** *(43 units minimum)*

Be advised: no course may be listed twice; no double counting.

### Core (15 units minimum)

- **CS** 107 or 107E - Computer Organization and Systems
- **CS** 110 or 111 - Operating Systems Principles
- **CS** 161 - Design and Analysis of Algorithms

### Depth: Track and Electives (25 units and seven courses minimum)

- **CS** 221 - AI: Principles and Techniques (Track Requirement A)
- **CS** Track Requirement B (see note 4)
- **CS** Track Requirement B (see note 4)
- **CS** Track Requirement C (see note 5)
- Elective (see note 6)
- Elective (see note 6)
- Elective (see note 6)
- Optional Elective

### Senior Project (1 course required)

- **CS** At least 3 units of 191, 191W, 194, 194H, 194W, 210B, 294 or 294W (see note 8)

**Computer Science Core, Depth and Senior Project Total (43 units minimum)**

### Program Approvals

**Departmental**

Printed Name: __________________________ Date: ______________

Signature: __________________________

**School of Engineering (No action required-office use only)**

Printed Name: __________________________ Date: ______________

Signature: __________________________

### NOTES (continued from page 1)

(4) Track Requirement B: Two courses, each from a different area: Area I) AI Methods [CS 224R, 228, 229, 229M, 229T, 234, 238]; Area II) Natural Language Processing: [CS 124, 224N, 224S, 224U, 224V]; Area III) Vision: [CS 131, 231A, 231C, 231N]; Area IV) Robotics: [CS 223A, 237A]

(5) Track Requirement C: One additional course from the Track Requirement B list, or from the following: AI Methods: [CS 157, 205L, 230, 236, 257, Stats 315A, Stats 315B]; Comp Bio: [CS 235, 279, 371]; Information and the Web: [CS 224W, 276]; Ethics: [256] Other: [151, 227B, 237]; Robotics and Control: [CS 327A, 329 (with advisor approval), ENGR 205, MS&E 251, 351]

(6) Track Electives: At least three addl courses selected from the Track Requirement B list, C list, the General CS Electives list (see Note 7), or the following: CS 237B, 257, 275, 287B, 326, 326D, 330, 333, 336, 338, 398, 428; EE 263, 278, 364A, 364B; ECON 286; MS&E 252, 352, 355; PHIL 152; PSYCH 204A, 204B, 209; STATS 200, 202, 205, 271

*Students may replace one track elective with a course found at: http://www.cs.stanford.edu/humanities*


(8) The WiM requirement may be met by taking CS 181W or 182W as a Technology in Society course or through the Senior Project course (CS 191W, 194W, 210B, or 294W only).