

Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Course Number & Title (units)	Prerequisites†
ECS 20: Discrete Mathematics for Computer Science (4)	a 'C-' or better in MAT 16A or 17A or 21A
<b>ONE (1)</b> of the following series options in its entirety: <i>mixing of courses between series is not allowed</i> <ul style="list-style-type: none"> <li><input type="checkbox"/> ECS 36 Series:           <ul style="list-style-type: none"> <li>ECS 36A: Programming &amp; Problem Solving (4)</li> <li>ECS 36B: Software Development &amp; Object-Oriented Programming in C++ (4)</li> <li>ECS 36C: Data Structures, Algorithms, &amp; Programming (4)</li> </ul> </li> <li><b>OR</b></li> <li><input type="checkbox"/> ECS 32/34 Series:           <ul style="list-style-type: none"> <li>ECS 32A: Introduction to Programming or ECS 36A: Programming &amp; Problem Solving (4)</li> <li>ECS 32B: Introduction to Data Structures (4)</li> <li>ECS 32C: Implementation of Data Structures in C (4)</li> <li>ECS 34: Software Development in UNIX &amp; C++ (4)</li> </ul> </li> </ul>	ECS 36A: a 'C-' or better in ECS 32A, or must satisfy computer science placement exam ECS 36B: a 'C-' or better in ECS 36A ECS 36C: a 'C-' or better in ECS 20 and in either ECS 36B  ECS 32A: none ECS 32B: a 'C-' or better in ECS 32A or 36A ECS 32C: a 'C-' or better in ECS 32B ECS 34: a 'C-' or better in ECS 32C
ECS 50: Computer Organization & Machine Dependent Programming (4)	a 'C-' or better in ECS 34 or 36B
MAT 21A: Calculus (4)	must satisfy mathematics placement requirement
MAT 21B: Calculus (4)	a 'B' or better in MAT 17A, or a 'C-' or better in either MAT 21A or 21AH
MAT 21C: Calculus (4)	a 'B' or better in MAT 17B, or a 'C-' or better in MAT 16C or 17C or 21B or 21BH
MAT 21D: Vector Analysis (4)	a 'B' or better in MAT 17C, or a 'C-' or better in MAT 21C or 21CH
<b>ONE (1)</b> of the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> MAT 22A: Linear Algebra (3)</li> <li><input type="checkbox"/> MAT 27A: Linear Algebra with Applications to Biology (4)</li> <li><input type="checkbox"/> MAT 67: Modern Linear Algebra (4)</li> </ul>	MAT 22A: a 'C-' or better in MAT 16C or 17C or 21C or 21CH; ENG 6 or EME 5 or ECH 60 or MAT 22AL may be taken concurrently MAT 27A: a 'C-' or better in MAT 17C or 21C or 21CH MAT 67: a 'C-' or better in MAT 21C or 21CH
<b>ONE (1)</b> of the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> MAT 22B: Differential Equations (3)</li> <li><input type="checkbox"/> MAT 27B: Differential Equations with Applications to Biology (4)</li> </ul>	MAT 22B: a 'C-' or better in MAT 22A or 67 MAT 27B: a 'C-' or better in MAT 27A or BIS 27A, or a 'C-' or better in MAT 22A and in either MAT 22AL or ENG 6 or ECS 32A or ECS 36A or ECH 60 or EME 5
<b>ONE (1)</b> of the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> CHE 2A General Chemistry (5)</li> <li><input type="checkbox"/> CHE 4A: General Chemistry for the Physical Sciences &amp; Engineering (5)</li> </ul>	CHE 2A: a score of 24 or higher on the chemistry placement exam CHE 4A: a score of 28 or better on the chemistry placement exam
PHY 9A: Classical Physics (5)	MAT 21B or 21M
PHY 9B: Classical Physics (5)	PHY 9A; MAT 21C; MAT 21D (may be taken concurrently)
PHY 9C: Classical Physics (5)	PHY 9B; MAT 21D; MAT 22A or 27A (may be taken concurrently)
PHY 9D: Modern Physics (5)	PHY 9C; MAT 22A or 27A
ENG 17: Circuits I (4)	MAT 21C
CMN 1: Introduction to Public Speaking (4)	none
<b>ONE (1)</b> of the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> COM 1: Major Works of the Ancient World (4)</li> <li><input type="checkbox"/> COM 2: Major Works of the Medieval &amp; Early Modern World (4)</li> <li><input type="checkbox"/> COM 3: Major Works of the Modern World (4)</li> <li><input type="checkbox"/> COM 4: Major Works of the Contemporary World (4)</li> <li><input type="checkbox"/> ENL 3: Introduction to Literature (4)</li> <li><input type="checkbox"/> NAS 5: Introduction to Native American Literature (4)</li> <li><input type="checkbox"/> UWP 1 or UWP 1V or UWP 1Y: Introduction to Academic Literacies (4)</li> </ul>	COM 1: completion of ELWR COM 2: completion of ELWR COM 3: completion of ELWR COM 4: completion of ELWR ENL 3: completion of ELWR NAS 5: completion of Subject A requirement UWP 1: completion of ELWR

**Complete ALL of the following depth subject matter courses:**

UWP 101: Advanced Composition (4) <b>OR</b> Upper Division Composition Exam	a 'C-' or better in UWP 1 or 1V or 1Y or COM 1 or 2 or 3 or 4 or ENL 4 or NAS 5; upper division standing
<b>ONE (1)</b> of the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> ECS 120: Theory of Computation (4)*</li> <li><input type="checkbox"/> ECS 122A: Algorithm Design &amp; Analysis (4)*</li> </ul>	ECS 120: ECS 20 or MAT 108 ECS 122A: ECS 20; ECS 32B or 36C or 60
ECS 132: Probability & Statistical Modeling for Computer Science (4)	ECS 34 or 36B; ECS 20; MAT 21C; MAT 22A or 27A or 67
ECS 140A: Programming Languages (4)	ECS 20; ECS 50; ECS 150; ECS 32B or 36C
ECS 150: Operating Systems & System Programming (4)	ECS 34 or 36C; ECS 154A or EEC 170
ECS 152A: Computer Networks (4)	ECS 32B or 36C; ECS 132 or EEC 161 or MAT 135A or STA 32 or STA 131A or STA 120
ECS 154A: Computer Architecture (4)	ECS 50 or EEC 70
ECS 154B: Computer Architecture (4)	ECS 154A or EEC 170 or EEC 180A
ECS 160: Software Engineering (4)	ECS 140A
ECS 188: Ethics in an Age of Technology (4)	upper division standing
ECS 193A <b>AND</b> ECS 193B: Senior Design Project (6)	ECS 193A: ECS 160 (may be taken concurrently); senior standing; ECS 193B: ECS 193AIP or better
EEC 100: Circuits II (5)	a 'C-' or better in ENG 17; MAT 22B or 27B
EEC 172: Embedded Systems (4)	EEC 100; EEC 170 or ECS 154A

Course Number & Title (units)	Prerequisites†
<b>Complete a minimum of 4 courses and 15 units from the following Upper Division Electives:</b> <i>a maximum of 1 course from the restrictive elective list** may be used as an upper division elective</i>	
☐ ECS 120: Theory of Computation (4) *	ECS 20 or MAT 108
☐ ECS 122A: Algorithm Design & Analysis (4) *	ECS 20; ECS 32B or 36C
☐ ECS 122B: Algorithm Design & Analysis (4)	ECS 122A; ECS 34 or 36C
☐ ECS 124: Theory & Practice of Bioinformatics (4)	ECS 32A or 36A or ENG 6; STA 12 or 13 or 13Y or 32 or 100 or 131A or MAT 135A or BIM 105; BIS 2A or MCB 10
☐ ECS 127: Cryptography (4)	ECS 20 or MAT 108; ECS 32A or 36A
☐ ECS 129: Computational Structural Bioinformatics (4)	BIS 2A or MCB 10; ECS 32A or 36A
☐ ECS 130: Scientific Computation (4)	ECS 32A or 36A or ENG 6; MAT 22A or 27A or 67
☐ ECS 140B: Programming Languages (4)	ECS 140A
☐ ECS 142: Compilers (4)	ECS 140A; ECS 120
☐ ECS 145: Scripting Languages & their Applications (4)	ECS 34 or 36B or instructor consent
☐ ECS 152B: Computer Networks (4)	ECS 150; ECS 152A or EEC 173A
☐ ECS 152C: Advanced Topics in Computer Networks (4)	ECS 152A or EEC 173A
☐ ECS 153: Computer Security (4)	ECS 150; ECS 152A or EEC 173A
☐ ECS 158: Programming on Parallel Architectures (4)	ECS 150
☐ ECS 161: Modern Programming Tools (4)	ECS 32B or 36B
☐ ECS 162: Web Programming (4)	ECS 34 or 36B
☐ ECS 163: Information Interfaces (4)	ECS 32B or 36C
☐ ECS 164: Human-Computer Interaction (4)	ECS 32B or 36C
☐ ECS 165A: Database Systems (4)	ECS 32B or 36C
☐ ECS 165B: Database Systems (4)	ECS 165A; ECS 34 or 36C
☐ ECS 170: Introduction to Artificial Intelligence (4)	ECS 32B or 36C
☐ ECS 171: Machine Learning (4)	ECS 32B or 36C
☐ ECS 172: Recommender Systems (4)	ECS 32B or 36B; ECS 132 or STA 130A or STA 131A or ECN 140; MAT 22A or 27A or 67
☐ ECS 173: Image Processing & Analysis (4)	a 'C-' or better in MAT 22A or 27A or 67; ECS 32B or 36C
☐ ECS 174: Computer Vision (4)	ECS 32B or 36C; MAT 22A or 27A or 67
☐ ECS 175: Computer Graphics (4)	ECS 34 or 36C; MAT 22A or 27A or 67
☐ ECS 177: Scientific Visualization (4)	ECS 175
☐ ECS 178: Geometric Modeling (4)	ECS 175
☐ ECS 189: Special Topics (4)	instructor consent
☐ ECS 191: Software Design Project (4)	ECS 160
☐ ECS 192: Internship in Computer Science (3-5) OR ECS 199: Special Study (3-5)	varies; see department website
☐ EEC 171: Parallel Computer Architecture (4)	EEC 170 or ECS 154B
☐ EEC 180: Digital Systems II (5)	EEC 18 or 180A

**Restrictive Elective List: \*\***

☐ ECN 122: Theory of Games & Strategic Behavior (4)	MAT 16A & 16B, or MATH 21A & 21B, or MAT 17A & 17B, or instructor consent
☐ LIN 127: Text Processing & Corpus Linguistics (4)	none
☐ LIN 177: Computational Linguistics (4)	instructor consent
☐ PSC 120: Agent-Based Modeling (4)	none
☐ MAT 135A: Probability (4)	MAT 21C; MAT 67 or 108
☐ MAT 135B: Stochastic Processes (4)	MAT 135A; MAT 22A or MAT 27A or MAT 67 or BIS 27A
☐ STS 115: Data Sense & Exploration: Critical Storytelling with Analysis (4)	none
☐ STA 131A: Introduction to Probability Theory (4)	a 'C-' or better in MAT 21C and in either MAT 22A or 27A or 67
☐ STA 131B: Introduction to Mathematical Statistics (4)	a 'C-' or better in STA 131A or MAT 135A; instructor consent
☐ STA 142A: Statistical Learning I (4)	a 'C-' or better in STA 141A, and in either STA 130A or STA 131A or MAT 135A
☐ STA 142B: Statistical Learning II (4)	a 'C-' or better in STA 142A, and in either STA 130B or 131B

†Prerequisites are subject to change; consult the University Catalog (<https://catalog.ucdavis.edu/>) for the most recent updates

\*Completion of a core requirement will not satisfy an elective requirement simultaneously

✓Total units required for CSE major: 144-154