

# Applied Math Minor 2024-2025 Curriculum Chart

### Calculus

*Complete one sequence*

<b>MATH 19A</b> Calculus for Sci., Engr. & Math Prerequisites: Math 3 or Math Placement	&	<b>MATH 19B</b> Calculus for Sci., Engr. & Math Prerequisites: Math 19A or Math 20A
<b>OR</b>		
<b>MATH 20A</b> Honors Calculus Prerequisites: Math Placement Score of 500+ or AP/IB Score Placement	&	<b>MATH 20B</b> Honors Calculus Prerequisites: Math 20A

### Linear Algebra & Differential Equations

<b>AM 10</b> Math Methods for Engineers I Prerequisites: Math Placement or Math 3	<b>OR</b>	<b>Math 21*</b> Linear Algebra Prerequisites: Math 19A or Math 20A	<b>OR</b>	<b>PHYS 116A*</b> Math Methods in Physics Prerequisites: Math 23A
<b>&amp;</b>				
<b>AM 20</b> Math Methods for Engineers II Prerequisites: Math 19B or Math 20B and AM 10 or Math 21				<b>Math 24*</b> Differential Equations Prerequisites: Math 22 or Math 23A

\*Students who complete Math 21 and 24 or Physics 116A are strongly recommended to take the MATLAB self-paced trainings at: [matlabacademy.mathworks.com](http://matlabacademy.mathworks.com)

### Multivariable Calculus

*Complete one sequence*

<b>MATH 23A</b> Vector Calculus Prerequisites: Math 19A or Math 20A or AP Calc BC Score of 4 or 5	&	<b>MATH 23B</b> Vector Calculus Prerequisites: Math 23A
<b>OR</b>		
<b>AM 30</b> Multivariate Calculus for Engineers Prerequisites: Am 10 or Math 21, and Math 19B or Math 20B		

### Mathematical Methods

<b>AM 100</b> Mathematical Methods for Engineers	Prerequisites: AM 20 or Math 24, and AM 30 or Math 23B
---	---

### Dynamical Systems

<b>AM 114</b> Introduction to Dynamical Systems	Prerequisites: AM 10 or MATH 21, AM 20 or MATH 24, and AM 30 or MATH 23A or MATH 22, or PHYS 116A <sub>1</sub>
--	--

### Applied Math Elective

**ELECTIVE\***

\*Choose one elective from the following list:  
 Any 5-credit upper-division (100-199) or graduate (200-299) AM course that is not already a core course. AM 198 can only be used once for elective credit. AM 200, 211, 296, 297, and 299 may not be used.

<b>ASTR 171</b>	<b>PHYS 105</b>
<b>ECE 103</b>	<b>PHYS 139A</b>
<b>ECE 115</b>	<b>PHYS 139B</b>
<b>ECE 141</b>	<b>PHYS 171</b>
<b>MATH 103A</b>	<b>STAT 132</b>
<b>MATH 117</b>	<b>CSE 107 OR</b>
<b>MATH 121A</b>	<b>STAT 131</b>

*Students may also propose other electives which use applied mathematical methods, subject to approval by the department.*

### Numerical Methods

<b>AM 147</b> Computational Methods & Applications Prerequisites: AM 10 or Math 21	<b>OR</b>	<b>PHYS 115</b> Computational Physics Prerequisites: Phys 102 and Phys 105; and Phys 116A or Math 21 and Math 24; and Phys 116C or Math 107	<b>OR</b>	<b>Math 148</b> Numerical Analysis Prerequisites: MATH 22 or MATH 23A; and MATH 21 or AM 10; and MATH 24 or AM 20; and MATH 105A or MATH 152 or CSE 101.
--	-----------	---	-----------	--

### Partial Differential Equations

<b>AM 112</b> Introduction to Partial Differential Equations Prerequisite: AM 100 or Permission	<b>OR</b>	<b>PHYS 116C</b> Math Methods in Physics Prerequisites: Phys 116A or Math 21, and Math 24; and Math 23A and Math 23B	<b>OR</b>	<b>MATH 107</b> Partial Differential Equations Prerequisites: Math 21 or AM 10; and Math 24 or AM 20; and Math 100 or CSE 101
---	-----------	--	-----------	---

The applied mathematics minor is available for students who wish to develop (1) proficiency in modeling real-life problems using mathematics; and (2) knowledge of standard, practical analytical and numerical methods for the solution of these models. This minor could be combined with a major in any of the physical, biological, mathematical, or engineering sciences as preparation for a graduate degree in that field or in applied mathematics. Please review the [Applied Math Career Electives document](#) as you select upper division electives that align with your professional goals: <https://docs.google.com/document/d/1dhLayvCKhc4PsO87nT5-apR5h-yIkyfWjYRWSNe2hOE/edit?usp=sharing>

## Applied Math Minor 2024-2025 Curriculum Chart

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

Fall _____	Winter _____	Spring _____	Summer _____

**Note:**

The prerequisites listed on this curriculum chart are accurate as of August 15, 2024 according to UCSC's general catalog. Prerequisites listed on this chart are subject to change and students should refer to the catalog for the most up to date requirements.