

# B.S. in Mathematical and Scientific Computation (Biology Emphasis)

For use with the 2016-2018 General Catalog

## PREPARATORY COURSES (36 - 42 units): Plan to complete these by the end of sophomore year.

Class	21A	21B	21C	21D	[22A and 108] or [67]	22B	25	ECS 30	ECS 40
Grade									

### MATLAB Requirement:

Chose <u>one</u> of the following classes:	MAT 22AL (1 unit)	ENG 6 (4 units)	Other MATLAB experience
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## DEPTH COURSES (47 units): Plan to complete these classes during your junior and senior years.

Category	Fall	Winter	Spring	Summer I, II	Adviser Comments
Core	125A /	125A /		125A	
Core		125B /	125B /	125B	
Core	128A /				
Core		128B /			
Core			128C /		
Core	135A /	135A /	135A /		
Core	150A /			150A	
Emphasis			124 /		
Enrichment <sup>1</sup>					
Enrichment <sup>1</sup>					
Biology Class <sup>2</sup>					
Capstone <sup>3</sup>					

<sup>1</sup> **Enrichment:** Choose any 2 upper-division MAT classes from MAT 111 to MAT 185B (excluding MAT 180).

<sup>2</sup> **Biology Class:** Choose any 1 of the classes below. Keep in mind these classes may have prerequisites, so be sure to check the General Catalog/Schedule Builder and plan accordingly.

- ECS 124, 129, 170; EVE 101, 102; EBS 130; ESP 121; MCB 121, 162; NPB 163/198.

<sup>3</sup> **Capstone:** Choose one of the following: MAT 189 (Advanced Problem Solving); MAT 180 (Special Topics); MAT 192 (Internship); or MAT 194 (Undergrad Thesis). Consult an adviser if you would like to satisfy this requirement by completing an internship or an undergraduate thesis. You should plan to complete the capstone during your final year.

### When are classes offered?

- Academic Year: <https://www.math.ucdavis.edu/courses/academic-schedule>
- Summer Session: <https://www.math.ucdavis.edu/courses/summer>

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For additional classes not listed below (such as enrichment options), as well as for more detailed information (including course descriptions), please consult the **General Catalog** at <http://catalog.ucdavis.edu>.

Please note that the quarters that classes are offered are subject to change.

## MAT classes:

	Title	Units	Prerequisite	Quarter Offered
21A	Calculus	4	Qualifying math placement exam score	F, W, S, SSI, SSII
21B	Calculus	4	21A or 21AH with C- or above; or 17A with B or above	F, W, S, SSI, SSII
21C	Calculus	4	21B, 21BH, 16C, or 17C with a C- or above; or 17B with a B or above	F, W, S, SSI, SSII
21D	Vector Analysis	4	21C or 21CH with C- or above (or 17C with B or above)	F, W, S, SSI, SSII
22A	Linear Algebra	4	21C or 21CH with C- or above; and ENG 6 or EME 5 or concurrent enrollment in MAT 22AL	F, W, S, SSI, SSII
22AL	MATLAB/Linear Algebra Computer Theory	1	16C, 17C, 21C, or 21CH	F, W, S, SSI, SSII
22B	Differential Equations	3	22A or 67 with C- or above	F, W, S, SSI, SSII
25	Advanced Calculus	4	21C or 21CH	F, W, S, SSII
67	Modern Linear Algebra	4	21C or 21CH with C- or above	F, W
108	Intro to Abstract Math	4	21B	F, W, S, SSII
124	Mathematical Biology	4	22A or 67; 22B	Alternate Years
125A	Real Analysis	4	25	F, W, S, SSI
125B	Real Analysis	4	125A; 67 or both 22A and 108	W, S, SSII
128A	Numerical Analysis	4	21C; ECS 30	F
128B	Numerical Analysis in Solution of Equations	4	21C; 22A or 67; ECS 30	W
128C	Numerical Analysis in Differential Equations	4	22A or 67; 22B; ECS 30	S
135A	Probability	4	25 or 67 or 108	F, W, S
150A	Modern Algebra	4	67 or both 22A and 108	F, SSII

## Outside MAT classes:

	Title	Units	Prerequisite	Quarter Offered
ECS 30	Programming and Problem Solving	4	MAT 16A or 21A (may be taken concurrently); prior experience with basic programming concepts recommended	F, W, S
ECS 40	Software Development and Object-Oriented Programming	4	ECS 30 or the equivalent with a grade of C- or better	F, W, S
ENG 6	Engineering Problem Solving	4	MAT 16A, 17A or 21A, C- or above; MAT 16B, 17B or 21B, C- or above (may be taken concurrently)	F, W, S