

Mathematical Analytics and Operations Research (B.S.)

For use with the 2016-2018 General Catalog

PREPARATORY COURSES (44-50 units): Plan to complete these by the end of sophomore year.

Course	21A	21B	21C	21D	[22A and 108] or [67]	22B	25
Grade							

Course	ECS 30	ECN 1A	ECN 1B	STA 32 or 100
Grade				

MATLAB Requirement:

Chose <u>one</u> of the following classes:	MAT 22AL (1 unit)	EME 5 (4 units)	ENG 6 (4 units)	Other MATLAB experience
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DEPTH COURSES (51 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 /	125A	
Core		125B /	125B /		125B
Core	135A /	135A /	135A /		
Core			135B /		
Core	128A /	128B /	128C /		Choose any 1 quarter of the 128 series
Core	150A /				150A
Core			160 /		Prerequisite is MAT 167
Core	168 /	168 /			
Enrichment A ¹	167		167		
Enrichment A ¹					
Enrichment B ²					
Enrichment B ²					
Capstone ³					

¹ **Enrichment A:** Choose any 2 classes from the options below:

- Upper-division MAT classes from MAT 111 to MAT 185B (excluding MAT 180); STA 131B, 131C, 137, 141ABC

² **Enrichment B:** Choose any 2 classes from the options below (remember to check prerequisites):

- ECN 100, 121A, 121B, 122, 134, 140; ARE 155, 156, 157

³ **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>

Mathematical Analytics and Operations Research Courses

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
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
135B	Stochastic Processes	4	22A or 67; 135A	S
150A	Modern Algebra	4	67 or both 22A and 108	F, SSII
160	Mathematical Foundations of Database Theory, Design and Performance	4	MAT 167	S
168	Optimization	4	67 or both 22A and 108; 21C	F, W

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
ECN 1A	Microeconomics	4	None (ECN 1A and 1B can be taken in either order)	F, W, S
ECN 1B	Macroeconomics	4	None (ECN 1A and 1B can be taken in either order)	F, W, S
STA 32	Intro Stat Analysis Through Computers	4	MAT 16B or 17C or 21B; ability to program in a high-level programming language.	W, S
STA 100	Applied Stats for BioSci	4	MAT 16B or 17C or 21B	F, W, S