Mathematical Analytics and Operations Research (B.S.)
SAMPLE SCHEDULE

YEAR 1	YEAR 2
FALL QUARTER: MAT 21A, ECN 1A	FALL QUARTER: MAT 21D, STA 32
WINTER QUARTER: MAT 21B, ECN 1B	WINTER QUARTER: MAT 22, MAT 22AL
SPRING QUARTER: MAT 21C, ECS 32A	SPRING QUARTER: MAT 22B, MAT 108
YEAR 3	**YEAR 4**
FALL QUARTER: MAT 127A, MAT 128X, ECN/ARE 1XX	FALL QUARTER: MAT 150A, MAT 167
WINTER QUARTER: MAT 127B, MAT 135A, ECN/ARE 1XX	WINTER QUARTER: MAT 168, MAT 1XX
SPRING QUARTER: MAT 127C, MAT 135B	SPRING QUARTER: MAT 170, Capstone

Requirements

PREPARATORY COURSEWORK (39-43): Plan to complete these by the end of sophomore year.

	Course	Units	Qtr(s) Offered	Year	Prerequisites & Enrollment Restrictions
☐	MAT 21A (Calculus: Differential Calculus)	4	F W S SSI SSII		Math placement exam score of 35 or higher (& 3 or higher on trig subscore)
☐	MAT 21B (Calculus: Integral Calculus)	4	F W S SSI SSII		21A or 21AH with C- or above; or 17A with B or above
☐	MAT 21C (Calculus: Partial Derivatives & Series)	4	F W S SSI SSII		21B, 21BH, 16C, or 17C with a C- or above; or 17B with a B or above
☐	MAT 21D (Vector Analysis)	4	F W S SSI SSII		21C or 21CH with a C- or above; or 17C with a B or above
☐	*Choose between (22A/27A and 108) or 67:*				
	☐ MAT 22A (Linear Algebra) **OR**	3	F W S SSI SSII		21C or 21CH with a C- or above; AND ENG 6 or concurrent enrollment in 22AL
	MAT/BIS 27A (Linear Algebra w/ Applications to Bio)	4	W		17C or 21C or 21CH C- or above
	☐ **AND** MAT 108 (Intro to Abstract Math)	4	F W S SSI SSII		21B (but not recommended until you complete 21C)
	☐ **OR** MAT 67 (Modern Linear Algebra)**	4	W		21C or 21CH with a C- or above. *See note below.*
☐	MAT 22B (Differential Equations) **OR**	3	F W S SSI SSII		22/27A or 67 with C- or above
	MAT/BIS 27B (Differential Equations w/ Applications to Bio)	4	S		27A C- or above; or 22A C- or above AND (22AL or ENG 6 OR EME 5 C- or above)
☐	*Choose between ENG 6 or (ECS 32A and MAT 22AL):*				
	☐ ENG 6 (Engineering Problem Solving), **OR**	4	F W S SSII		16A, 17A, or 21A, C- or above; AND 16B, 17B, or 21B with a C- or above (may be
	☐ MAT 22AL (MATLAB) **AND**	1	F W S SSI SSII		16C, 17C, or 21CH
	☐ ECS 32A (Intro to Programming)***	4	F W S		Please wait to take this class until after your first quarter.
☐	ECN 1A (Microeconomics)	4	F W S SSI SSII		
☐	ECN 1B (Macroeconomics)	4	F W S SSI SSII		
☐	STA 32 **OR** STA 100	4			

NOTES

** MAT 67 is a more abstract, rigorous version of 22A and 108. Recommended if you earn all A's in MAT 21ABC and like theory.

*** ECS 32A can be replaced by ECS 10, 30, 40, 32B, 34, 36A, 36B, or 36C.

	Course	Units	Qtr(s) Offered	Year	Prerequisites & Enrollment Restrictions
☐	MAT 127A (Real Analysis)	4	F W S SSI		21C or 21CH; and (22/27A and 108) or 67
☐	MAT 127B (Real Analysis)	4	F W S SSII		127A
☐	MAT 127C (Real Analysis)	4	F W S SSI		127B
☐	MAT 135A (Probability)	4	F W S SSI		21C; and (MAT 108 or MAT 127A)
☐	MAT 135B (Stochastic Processes)	4	S		135A
☐	Choose any **1** of the following classes:	4			
	MAT 128A (Numerical Analysis)	4	F W SSII		21C and (ECS 32A or ENG 6)
	MAT 128B (Numerical Analysis in Solution of Equations)	4	W		21C and 22/27A and (ECS 32A or ENG 6)
	MAT 128C (Numerical Analysis in Differential Equations)	4	S		21C and 22/27A and 22B and (ECS 32A or ENG 6)
☐	MAT 150A (Modern Algebra)	4	F W SSI		(22/27A and 108) or 67
☐	MAT 170 (Math for Data Analytics & Decision Making)	4	S		167
☐	MAT 168 (Optimization)	4	F W		(22/27A and 108) or 67; 21C
☐	Enrichment A (e.g. MAT 167)	4	See below for more information about Enrichment A options.		
☐	Enrichment A	4			
☐	Enrichment B	4	See below for more information about Enrichment B options.		
☐	Enrichment B	4			
☐	Capstone	3	See below for more information about Capstone options.		

DEPTH COURSEWORK (51 units): Plan to complete these during your junior and senior years.

Information above is subject to change, based on changes to course offerings, prerequisites, etc.

ENRICHMENT A OPTIONS

You are required to take 2 Enrichment A Classes. Approved Enrichment A classes include the following: any class from **MAT 111 through MAT 185B** (**excluding MAT 180 and any core classes**); **STA 131B, 131C, 137, 141A, 141B, 141C**.

Note: your faculty advisor can also help with this. Find their contact info here: https://www.math.ucdavis.edu/undergrad/advising/advisers/

ENRICHMENT B OPTIONS

You are required to take 2 Enrichment B Classes. Approved Enrichment B classes include the following: **ECN 100A (or ARE100A), 100B (or ARE100B), 121A, 121B, 122, 134; ARE 100A (or ECN100A), 100B (or ECN100B), 155, 156, 157.**

◦ *See catalog.ucdavis.edu to learn more about each of these classes. Note that they have prerequisites. Plan accordingly.*

CAPSTONE

You are required to complete 1 of the following options before graduation (typically in your last year).

- One of the in-depth math courses: **MAT 115B, 118B, 119B, 146, 150B, 150C, or 185B.**
- **MAT 180** (Special Topics class). Offered F, W, S. Topic changes every quarter: https://www.math.ucdavis.edu/courses/syllabi/special-topics/
- **MAT 189** (Advanced Problem Solving). Offered irregularly (usually spring). Project-based class with written and verbal presentations.
- **MAT 192** (Internship in Applied Math). Requires faculty advisor approval and 90 hours of internship. You must find internship; ICC can help.
- **MAT 194** (Undergrad Thesis). Requires that you find a faculty member who will work with you. 2 quarter commitment minimum.

https://www.math.ucdavis.edu/undergrad/research/thesis/