# Applied Math B.S.
## SAMPLE SCHEDULE

| YEAR 1 | YEAR 2 |
|---|---|
| FALL QUARTER: MAT 21A | FALL QUARTER: MAT 21D, ENG 6 |
| WINTER QUARTER: MAT 21B, 2 quarter sequence A | WINTER QUARTER: MAT 22A |
| SPRING QUARTER: MAT 21C, 2 quarter sequence B, ECS 32A | SPRING QUARTER: MAT 22B, MAT 108 |
| **YEAR 3** | **YEAR 4** |
| FALL QUARTER: MAT 127A, MAT 119A | FALL QUARTER: MAT 150A, MAT 128X |
| WINTER QUARTER: MAT 127B, MAT 135A | WINTER QUARTER: MAT 185A, MAT 128X, 1 upper division non-math course |
| SPRING QUARTER: MAT 127C, MAT 1XX | SPRING QUARTER: MAT 1XX, Capstone |

## Requirements

**PREPARATORY COURSEWORK (27-31 units):** 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) **AND** | 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 |
| ☐ | 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 |
| ☐ | ENG 6 (Engineering Problem Solving) | 4 | F W S    SSII | | 16A, 17A, or 21A, C- or above; AND 16B, 17B, or 21B with a C- or above (may be taken concurrently) |
| ☐ | ECS 32A (Intro to Programming)*** | 4 | F W S | | Please wait to take this class until after your first quarter. |
| ☐ | Choose one of the following 2-quarter sequences: PHY 9A & 9B; or BIS 2A & BIS 2B; or CHE 2A & 2B; or ECN 1A & 1B; or STA 32 & STA 100 | 6-10 | | | Check General Catalog (catalog.ucdavis.edu) for prerequisites. Check Schedule Builder or dept. websites for quarters offered. |

**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 150A (Modern Algebra) | 4 | F W    SSI | | (22A and 108) or 67 |
| ☐ | MAT 119A (Ordinary Differential Equations) | 4 | F W | | 21D; and 22/27B; and (22/27A or 67) |
| ☐ | Choose any **2** of the following classes: | 8 | | | |
| | MAT 128A (Numerical Analysis) | | F W    SSII | | 21C and (ECS 32A or ENG 6) |
| | MAT 128B (Numerical Analysis in Solution of Equations) | | W | | 21C and 22/27A and (ECS 32A or ENG 6) |
| | MAT 128C (Numerical Analysis in Differential Equations) | | S | | 21C and 22/27A and 22/27B and (ECS 32A or ENG 6) |
| ☐ | MAT 185A (Complex Analysis) | 4 | F W | | 127B and ((22/27A and 108) or 67) |
| ☐ | Enrichment Class (MAT 111 - 185B, excluding 180) | 4 | See below for more information about Enrichment options. | | |
| ☐ | Enrichment Class (MAT 111 - 185B, excluding 180) | 4 | | | |
| ☐ | Approved Upper Division Non-Math Class | 4 | See below for more information about Upper Division Non-Math Class options. | | |
| ☐ | 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 CLASSES

You are required to take 2 Enrichment Classes. Enrichment classes are any class from **MAT 111 through MAT 185B**, **excluding MAT 180 and any core classes** (e.g. MAT 127ABC, 135A).

◦ *See catalog.ucdavis.edu/programs/MAT/MATcourses.html for a list of all possible Math Enrichment classes & their prereqs. Pick ones that look interesting!*

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

## APPROVED UPPER DIVISION NON-MATH CLASSSES

Pre-approved non-math enrichment classes are: ARE 106, ATM 120, 121A, 121B, 128; CHE 110A, 110B, 110C; EEC 130A, 130B; ECH 140; ECI 114, 153; ECN 122, 140; ECS 120, 122A, 127; EME 115; ESP 150A; EVE 102; GEL 150A; LIN 177; PHY 104A, 104B, 104C, 105A, 105B, 108, 110A, 110B, 110C, 112, 115A, 115B, 116A, 116B, 154; PSC 103A, 103B; STA 131B, 131C, 141ABC

## CAPSTONE

You are required to complete <u>1 of the following options</u> before graduation (typically in your last year).
- One of the in-depth math courses: **MAT 115B, 118B, 119B, 135B, 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/