Bachelor of Science in Applied Math and Statistics - CAM 2023-2024 Flowchart - 121 Total Credit Hours

**FIRST YEAR**

| FALL 15 cr. | CSCI 128 CS for STEM | 3.0 | MATH 111 Calculus I | 4.0 | CHGN 121 Principles of Chem I | 4.0 | CSM 101 First Year Seminar | 1.0 | HASS 100 Nat. & Hum. Values | 3.0 |
| SPRING 15-17 cr. | MATH 201 Intro to Statistics | 3.0 | MATH 112 Calculus II | 4.0 | PHGN 100 Physics I | 4.0 | Success+Wellness 1-3 SEE NOTES¹ | | EDNS 151 Cornerstone Design I | 3.0 |

**SOPHOMORE**

| FALL 15 cr. | CSCI 200 Found. Programming | 3.0 | MATH 213 Calculus III | 4.0 | PHGN 200 Physics II | 4.0 | CSM 202 Student Well-Being | 1.0 | HASS 200 Global Studies | 3.0 |
| SPRING 15 cr. | CSCI Elective ³ Computing Elective² | 3.0 | MATH 332 Linear Algebra | 3.0 | MATH 300 Found. of Adv. Math | 3.0 | MATH 225 Diff. Equations | 3.0 | Free Elective | 3.0 |

**JUNIOR**

| FALL 15 cr. | MATH 307 Intro to Scientific Comp. | 3.0 | MATH 310 Intro to Math Modeling | 3.0 | MATH 334 Intro to Probability | 3.0 | MATH 324 Statistical Modeling | 3.0 | EBN 321 Engineering Economics | 3.0 |
| SPRING 15 cr. | MATH --- CAM/STAT Elective⁴ | 3.0 | MATH --- CAM/STAT Elective⁴ | 3.0 | MATH 455 Partial Differential Eq. | 3.0 | MATH 301 Intro to Analysis | 3.0 | CAS Elective Mid-Level³ | 3.0 |

**SENIOR**

| FALL 15 cr. | MATH 408 (Fall Only) Computational Methods | 3.0 | MATH 431 (Fall Only) Math Biology | 3.0 | MATH --- CAM/STAT Elective⁴ | 3.0 | MATH --- CAM/STAT Elective⁴ | 3.0 | CAS Elective Mid-Level³ | 3.0 |
| SPRING 16 cr. | MATH --- CAM Elective⁵ | 3.0 | MATH --- CAM Elective⁵ | 3.0 | MATH 484 (Spring Only) Math Modeling (Capstone) | 4.0 | Free Elective | 3.0 | CAS Elective 400-Level³ | 3.0 |

¹Success+Wellness – Choose one course from the following: CSM250 (1 credit), CSM275 (1 credit), CSM350 (3 credits), PAG2XX (1 credit)
²Computing Elective – May be satisfied with CSCI220, CSCI303, CSCI403, CSCI441, CSCI470, CSCI474, or CSCI478. Students are strongly advised to select from CSCI220*, CSCI303, or CSCI403. (*Students pursuing additional studies in computer science or data science (such as a minor or graduate program) should select CSCI220).
³Culture and Society (CAS) Electives – Students must complete 9 credits of restricted electives provided in the 2023-2024 catalog.
⁴MATH-CAM/STAT Electives – CAM students must choose 4 additional MATH-CAM/STAT electives from either the CAM or STAT lists provided in the 2023-2024 catalog.
⁵MATH-CAM Electives – CAM students must choose at least 2 electives from the CAM list provided in the 2023-2024 catalog.
MATH Electives
CAM majors must complete 18 credits (6 classes) of MATH electives:
- **MATH-CAM Elective Requirement**: 6 credits (2 classes) must be selected from the CAM elective list.
- **MATH-CAM/STAT Elective Requirement**: 12 credits (4 classes) maybe chosen from either the STAT elective list or the CAM elective list.

**CAM Electives**
CAM students must choose at least 2 electives from this list to satisfy the CAM Elective requirement.

MATH 440 – Parallel Scientific Computing
MATH 454 – Complex Analysis
MATH 457 – Integral Equations
MATH 458 – Abstract Algebra
MATH 459 – Asymptotics
MATH 472 – Mathematical and Computational Neuroscience
MATH 500 – Linear Vector Spaces
MATH 501 – Applied Analysis
MATH 514 – Applied Mathematics I
MATH 515 – Applied Mathematics II
MATH 540 – Parallel Scientific Computing
MATH 550 – Numerical Solution of Partial Differential Equations
MATH 551 – Computational Linear Algebra

**STAT Electives**
CAM students may choose up to 4 electives from this list to satisfy MATH-CAM/STAT Elective requirement.

MATH 335 – Intro to Mathematical Statistics
MATH 432 – Spatial Statistics
MATH 436 – Advanced Statistical Modeling
MATH 437 – Multivariate Analysis
MATH 438 – Stochastic Models
MATH 482 – Statistics Practicum (Capstone)
MATH 531 – Theory of Linear Models
MATH 534 – Mathematical Statistics I
MATH 535 – Mathematical Statistics II
MATH 560 – Intro to Key Statistical Learning Methods I
MATH 561 – Intro to Key Statistical Learning Methods II
CSCI 303/DSCI 403 – Intro to Data Science*
CSCI 403 – Database Management
CSCI 406 – Algorithms

*Students pursuing a Master's in Data Science should take DSCI 403 vs. CSCI 303

Departmental approval required for courses not on these lists.

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**Double-Counting Credits for BS/MS Combined Degree**

Students completing their Bachelor's degree at Mines who wish to continue to the Master's degree in Applied Mathematics or Statistics can double-count up to two courses, or six credits, from completed 500-level CAM or STAT Math coursework. Minimum grade of a "B-" is required.

**Additional Advising Tools**

- **AMS Canvas Page** - You can find the Group Advising presentations in the Module titled Advising Assistance. Click the link to visit the Canvas page.
- **Mines' Catalog** - Review degree requirements in the Mines' Catalog! Refer to the catalog/bulletin for your catalog year. Click the link to view catalogs.
- **Run a Degree Evaluation** - All students should now use DegreeWorks (located on the DegreeWorks card in Trailhead) to check their degree requirements.

Looking for more personalized support?

- **Meet with the AMS CASA Major Advisor** – Assists with reviewing your degree evaluation, adding a minor or second major, creating a plan for the combined BS+MS program, confirming your graduation requirements, and submitting most forms. If you’re looking to discuss any of these items, sign up for an advising appointment!

  - AMS CASA Major Advisor contact information and appointment link can be found here: [https://www.mines.edu/casa/advising/](https://www.mines.edu/casa/advising/)

- **Connect with your Faculty Mentor** - Looking for career or graduate school advice? Interested in getting involved in research but not sure where to start? Connect with your faculty mentor!

  - To find your current faculty mentor, log into Trailhead and select **Student Self-Service**, located under the **Student Services** card. Select **Student Profile** and your advisor will be listed on that page, along with your CASA Advisor.