

## John Champe High School Math Course Options

\* All classes with an asterisk are honors courses that receive a 0.5 weight in GPA.

\*\* All classes with two asterisks are AP level courses that receive a 1.0 weight.

| What are you in now?              | What can you take next?                                          |
|-----------------------------------|------------------------------------------------------------------|
| Algebra I                         | Geometry                                                         |
|                                   |                                                                  |
| Geometry                          | Functions, Algebra, and Data Analysis (FADA)                     |
|                                   | Algebra II                                                       |
|                                   | Algebra II/Trig *                                                |
|                                   |                                                                  |
| FADA                              | Algebra II                                                       |
|                                   |                                                                  |
| Algebra II                        | Advanced Functions and Modeling (AFAM)                           |
|                                   | Advanced Algebra/ Pre-calculus                                   |
|                                   | Probability and Statistics/ Discrete Math (elective)             |
|                                   | AP Statistics (recommended to take Prob/Stat first)**            |
|                                   | Computer Math (elective)                                         |
|                                   | AP Computer Science (recommended to take Computer Math first)**  |
|                                   |                                                                  |
| Algebra II/Trig *                 | Advanced Functions and Modeling (AFAM)                           |
|                                   | Advanced Algebra/ Pre-calculus                                   |
|                                   | Mathematical Analysis *                                          |
|                                   | Probability and Statistics/ Discrete Math (elective)             |
|                                   | AP Statistics **                                                 |
|                                   | Computer Math (elective)                                         |
|                                   | AP Computer Science (recommended to take Computer Math first) ** |
|                                   |                                                                  |
| AFAM                              | Advanced Algebra/ Pre-calculus                                   |
|                                   | Probability and Statistics/ Discrete Math (elective)             |
|                                   | AP Statistics (recommended to take Prob/Stat first) **           |
|                                   | Computer Math (elective)                                         |
|                                   | AP Computer Science (recommended to take Computer Math first) ** |
|                                   |                                                                  |
| Advanced Algebra/<br>Pre-calculus | AP Calculus AB **                                                |
|                                   | Probability and Statistics/ Discrete Math (elective)             |
|                                   | AP Statistics **                                                 |
|                                   | Computer Math (elective)                                         |
|                                   | AP Computer Science (recommended to take Computer Math first) ** |
|                                   |                                                                  |

| What are you in now?                                                                                                                                                       | What can you take next?                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Mathematical Analysis *                                                                                                                                                    | AP Calculus AB **                                                                                      |
|                                                                                                                                                                            | AP Calculus BC **                                                                                      |
|                                                                                                                                                                            | Probability and Statistics/ Discrete Math (elective)                                                   |
|                                                                                                                                                                            | AP Statistics **                                                                                       |
|                                                                                                                                                                            | Computer Math (elective)                                                                               |
|                                                                                                                                                                            | AP Computer Science (recommended to take Computer Math first) **                                       |
| AP Calculus AB **                                                                                                                                                          | AP Calculus BC **                                                                                      |
|                                                                                                                                                                            | Probability and Statistics/ Discrete Math (elective)                                                   |
|                                                                                                                                                                            | AP Statistics **                                                                                       |
|                                                                                                                                                                            | Computer Math (elective)                                                                               |
|                                                                                                                                                                            | AP Computer Science (recommended to take Computer Math first) **                                       |
| AP Calculus BC **                                                                                                                                                          | AP Statistics **                                                                                       |
|                                                                                                                                                                            | Multivariable Calculus (dual enrollment; must get at least a 3 on the AP Calculus BC exam; 0.5 weight) |
|                                                                                                                                                                            | Computer Math (elective)                                                                               |
|                                                                                                                                                                            | AP Computer Science (recommended to take Computer Math first) **                                       |
| Probability and Statistics/<br>Discrete Math (elective)<br><br>-This is a semester course<br>-1 <sup>st</sup> semester – Prob/Stat<br>-2 <sup>nd</sup> semester - Discrete | AP Statistics **                                                                                       |
| Computer Math (elective)                                                                                                                                                   | AP Computer Science **                                                                                 |

## **Math Course Pre-Requisites and Recommendations**

### **Algebra 1 (pre-requisite: Math 7 or Math 8):**

- Earns an Algebra 1 credit
- Takes the Algebra 1 SOL test in May
- Recommended for students currently in Math 8 or students who are expunging their Algebra 1 credit due to earning a C+ or lower
- Algebra 1 is the basis of all math courses so it is important to gain a strong foundation of this subject before moving forwards

### **Geometry (pre-requisite: Algebra 1):**

- Takes the Geometry SOL test in May
- Recommended for students who complete Algebra 1 with at least a B-

### **Functions and Data Analysis [FADA] (pre-requisite: Algebra 1, recommended pre-requisite: Geometry):**

- No SOL test in May
- Recommended for students currently in Geometry who completed Algebra 1 with a C/D/F (or needed a lot of retakes to earn a higher grade)
- Recommended for students who received an Algebra 1 SOL score below 425
- Recommended as a course in between Algebra 1 and Geometry to strengthen algebra skills and build number sense before entering Algebra 2

### **Algebra 2 (pre-requisite: Algebra 1 and Geometry):**

- Builds on the skills taught in Algebra 1 and the logical reasoning skills developed in Geometry
- Takes the Algebra 2 SOL test in May
- Recommended for students currently in Geometry who completed Algebra 1 with at least a B- (without needing retakes)
- Recommended for students who received an Algebra 1 SOL score of at least 425

### **Algebra 2/Trig (pre-requisite: Geometry):**

- Extremely fast paced honors class designed for students who are passionate about math and are interested in focusing their attention on the math and science disciplines
- Builds on the skills taught in Algebra 1 and the logical reasoning skills developed in Geometry
- Takes the Algebra 2 SOL test in May
- Honors Algebra 2 course, receives a 0.5 bump in GPA
- Recommended for students currently in Geometry who completed Algebra 1 with an A (without needing multiple retakes) and who currently hold an A in Geometry
- Recommended for students who received an Algebra 1 and Geometry SOL score of at least 500 (pass advanced)

### **Advanced Functions and Modeling [AFAM] (pre-requisite: Algebra 2):**

- No SOL test in May
- Recommended for students who are interested in continuing with the algebra and calculus track in math
- Recommended for students currently in Algebra 2 with a B or C

- Recommended as a course in between Algebra 2 and Pre-Calculus to strengthen Algebra 2 skills and preview trigonometry
- Recommended for students who received an Algebra 1 and Geometry SOL score below 425

**Advanced Algebra/Pre-Calculus (pre-requisite: Algebra 2):**

- No SOL test in May
- Recommended for students who are passionate about math and are interested in taking the calculus route in high school or college
- Recommended for students currently in Algebra 2 with an A (without needing retakes)
- Recommended for students who received an Algebra 1 and Geometry SOL score of at least 425

**Probability and Statistics/ Discrete Math (pre-requisite: Algebra 2):**

- No SOL test in May
- Recommended for students currently in Algebra 2 or Pre-calculus with a C or below
- Recommended for students who are not as interested in algebra but would like to see a different type of mathematics
- Recommended for students who are interested in taking AP Statistics (rather than AP Calculus)
- Semester course (first semester Probability and Statistics, second semester Discrete Math)
- Probability and Statistics – focuses on data analysis and probability
- Discrete Math – logic and problem solving

**Mathematical Analysis (pre-requisite: Algebra 2/Trig):**

- Extremely fast paced honors class designed for students who are passionate about math and are interested in focusing their attention on the math and science disciplines
- Honors pre-calculus course that covers pre-calculus material as well as Calculus A (limits and differentiation), receives a 0.5 bump in GPA
- No SOL test in May
- Recommended for students currently in Algebra 2/Trig with an A or A+ (without needing retakes)
- Recommended for students who received an Algebra 1 and Geometry SOL score of at least 500 (pass advanced)

**AP Calculus AB (pre-requisite: Pre-calculus or Mathematical Analysis):**

- Designed for students who are passionate about math and are interested in focusing their attention on the math and science disciplines
- Advanced placement course, receives a 1.0 bump in GPA
- Takes AP exam in May
- Covers both Calculus A (limits and differentiation) and B (integration) material
- Recommended for students currently in Pre-Calculus with an A or B
- Recommended for students currently in Mathematical Analysis with an A- or below

### **AP Calculus BC (pre-requisite: AP Calculus AB or Mathematical Analysis)**

- Extremely fast paced course designed for students who are passionate about math and are interested in focusing their attention on the math and science disciplines
- Advanced placement course, receives a 1.0 bump in GPA
- Takes AP exam in May which provides a score for both AP Calculus AB and BC
- Covers Calculus A (limits and differentiation), B (integration), and C (advanced techniques and sequences & series) material
- Recommended for students currently in AP Calculus AB with an A or B
- Recommended for students currently in Mathematical Analysis with an A or A+ (without needing retakes)

### **Multivariable Calculus (pre-requisite: AP Calculus BC)**

- Dual enrollment class with NOVA
- No AP exam
- Receives a 0.5 bump in GPA
- Recommended for juniors who are currently in AP Calculus BC with an A or B
- Must receive at least a 3 on the AP Calculus BC exam

### **AP Statistics (pre-requisite: Algebra 2; recommended pre-requisite: Probability and Statistics)**

- Advanced placement course, receives a 1.0 bump in GPA
- Takes AP exam in May
- Recommended for students who are interested in a different type of math (from the algebra and calculus track)
- Recommended for students currently in Probability and Statistics, or Algebra 2 or higher (it is recommended to have taken a higher level math after Algebra 2 prior to AP Statistics)

### **Computer Math (pre-requisite: Algebra 2)**

- No SOL or AP test
- Math elective course that can be taken in conjunction with other math courses
- Recommended for students who are interested in computer science
- Focuses on learning basic computer programming through Java

### **AP Computer Science (pre-requisite: Algebra 2; recommended pre-requisite: Computer Math)**

- Takes AP exam in May
- Advanced placement course, receives a 1.0 bump in GPA
- Math elective course that can be taken in conjunction with other math courses
- Recommended for students with some experience in computer science
- Focuses on learning computer programming through Java