

IB DP Program - Mathematics

Willows Preparatory School

DP Mathematics: Applications and Interpretation

Mathematics: Applications and Interpretation (Math AI for short) is for students who are interested in developing their mathematics for describing our world and solving practical problems. They will also be interested in harnessing the power of technology alongside exploring mathematical models. This course recognizes the increasing role that mathematics and technology play in a diverse range of fields in a data-rich world. As such, it emphasizes the meaning of mathematics in context by focusing on topics that are often used as applications or in mathematical modelling. To give this understanding a firm base, this course also includes topics that are traditionally part of a pre-university mathematics course such as calculus and statistics. Mathematics: applications and interpretation will develop mathematical thinking, often in the context of a practical problem and using technology to justify conjectures.

Math AI will be offered at both the standard and higher level. Students who wish to take Math AI at the higher level will have good algebraic skills and experience of solving real-world problems. They will also be students who get pleasure and satisfaction when exploring challenging problems.

The program is designed for a two-year period, with the topics listed below. They will not necessarily be taught in this order, depending on the needs of the class.

- Algebra
- Functions and Equations
- Geometry and Trigonometry
- Statistics and Probability
- Differential Calculus

There are two additional components to fulfill IB requirements: the external examinations and internal assessment (IA). The external examination consists of 2-3 exams at the end of year 2, depending on higher or standard level. The internal assessment (IA), is an individual investigation designed to “enable students to demonstrate the application of their skills and knowledge, and to pursue their personal interests, without the time limitations and other constraints that are associated with written examinations.” Preparation for the project begins in year 1 with the final completion deadline to be announced in Year 2.

Technology

The mathematics curriculum relies heavily on technology. As a result, students need to be sure that they come to every class with both their calculator and computer fully charged and ready to dive into work. The course requires the TI-84 calculator as specified in the supply list.

Assessment:

For a detailed description of our Assessment Policies, please see our assessment Policy Handbook on our website.

Willows Preparatory School teachers create and implement both formative and summative assessments, both of which are related to each other and integral to the learning process.

Formative Assessment (20% of semester grade) – assessments that provide smaller amounts of feedback on specific learning objectives and/or require students to demonstrate their knowledge of specific targeted aims in order to drive future instruction (e.g. at WPS: lesson exit ticket, daily warm-ups, comprehension quizzes, etc.).

Summative Assessment (80% of semester grade)– as part of the preparation for the external examination, students will have like a minimum of one weekly quiz covering current topics the first year. During the second year, there will be two quizzes per week, one covering current topics, the second one, from the first-year topics.

As part of the assessment there will be summative exams per unit.

Submission Guidelines

*Guidelines are subject to change. These are general course guidelines and it should be noted that Mr. Blum may alter or add additional, more specific requirements to any formative or summative assignment throughout the year.

Files

1. All work is submitted in Managebac, I do not accept submissions anywhere else
2. Files cannot be JPG's.
3. Files must be named with name or initials and name of assignment/submission
 - a. Ex. JG_unit3_conceptmap.pdf

Late Work

1. After unit 1, a deduction will occur depending on the type of late work:
 - a. 20% per school day for most formative homework, or
 - b. 10% per school day for project based work, or
2. I encourage students to revise their work for credit
3. You have until the end of the unit in which the work was assigned to re-submit revised work, or to submit late-work
4. There is no late penalty for revisions
5. YOU MUST NOTIFY ME THROUGH EMAIL when you have submitted late work or revised work.
 - a. YOU MUST PUT 'LATE WORK' IN THE SUBJECT LINE
 - b. YOU MUST STATE WHAT ASSIGNMENT WAS SUBMITTED IN THE EMAIL
 - c. I usually don't respond to Late Work emails, they are like a checklist for me to use when grading

Tests/Quizzes

1. If you miss a quiz or test (unless it is a documented emergency and have a doctor's note or other documentation) you will NOT be able to make it up and will receive a 0
2. If you know you will be missing school the day of a test or quiz, you may ask permission from me to take the test/quiz early
3. NO MAKE-UP TESTS/QUIZZES ARE ALLOWED (unless it is a documented emergency and have a doctor's note, or other documentation)

Missing Class

1. If you are missing class, please notify me through email to ask for work you're missing.
2. It is your responsibility to ask about and complete work you have missed.
3. Please ask for help if you are uncertain about the concepts or need assistance!

Student Conduct

In order to maintain a safe and enjoyable time at school, students are expected to behave in a responsible manner. Violations of student conduct expectations may result in disciplinary measures, which are explained later in this document. The following are expectations of all WPS students:

- Demonstrate courteous and respectful behavior at all times, including with use of school equipment/property and other people's belongings
- Follow staff instructions promptly
- Arrive to class fully equipped, ready to engage and in a timely manner
- Keep up to date with academic submissions and timelines
- Discuss your academic needs with your classroom teachers
- Walk in shared spaces and speak at a respectful volume while others are working and learning
- Conduct themselves with a sense of decorum
- When applicable, follow all guidelines outlined in the COVID-19 Handbook.

Zero Tolerance Policies

Willows Preparatory School has zero tolerance for alcohol, drugs, tobacco, weapons, age inappropriate material, graffiti and repeated instances of bullying behavior. If any students are found in possession of or engaging in any related activities of the above, whether on campus and/or during school hours, appropriate referrals will be made and consequences/outcomes will be documented on the student's file.

Consequences

Any student misconduct will be documented and may result in the following:

- A referral to Head of School or Assistant Head of School
- Support services through Counselor referral
- Meeting with parent, teacher, and administration
- Probation from extracurricular activities or other privileges (i.e. sport, clubs, lunch outside)

- Restricted use of facilities

Misconduct issues of a more serious nature, such as those related to zero tolerance policies include:

- Suspension – You are expected to keep up with your schoolwork during this time, as no allowances will be made in this regard.
- Expulsion – You are permanently disenrolled from Willows Preparatory School

Technology

Every student at WPS has their own Microsoft Surface. WPS's official Laptop/Technology Policy is found at the end of this document.

Teacher-Student E-mail Communication

You have the opportunity to reach out to teachers and staff using email; however, when applicable, face-to-face communication is preferred. Student email addresses should only be used for communication about academic issues or to ask questions in a respectful and professional manner. Students are expected to check email on a daily basis. If a student receives an email or message from another student that is confusing or inappropriate, please notify a teacher or staff member immediately. Willows Preparatory School reserves the right to access all WPS student emails, reset all passwords, and if necessary, suspend all email activity.

Cell Phones and smart devices

We understand that cell phones and other smart devices are an essential part of daily life. Smart watches while linked to cell phones are considered cell phones. Please make sure that the watches are on Do Not Disturb mode during the school day. Students are permitted to bring cell phones to school each day subject to the following conditions:

- Cell phones should remain OFF when students are present on the school campus. Cell phones must be stored in book bags during the 1st semester (or for however long COVID-19 Handbook guidelines are in place) or in student lockers.
- Students may use their cell phones to contact parents upon request. All authorized cell phone use must occur at the Front Desk in the main building and/or under the supervision of an administrator or teacher.

If a member of staff can see or hear a cell phone, the phone will be confiscated and turned over to the front desk. Confiscated phones will be returned at the end of that school day from the front desk after a parent is notified about the violation of this policy. All incidents are documented and recorded—repeat violations may result in additional consequences. In case of a personal emergency on campus (illness, personal situation, etc.) the student's first line of contact is a staff member. In family emergency situations, parents should contact the front office if they need to reach a student.

Classroom Computer Use

Laptops will be used regularly in class for lessons, notes, and activities. Students should not be checking emails, grades, chatting via Teams, or any other activities on their computer unless the teacher has given them permission. If a student is found not using a computer

appropriately, the computer will be taken away until the end of class and the following will take place:

- 1st Time: A warning from administration.
- 2nd Time: An email sent home to parents.
- 3rd Time: Meet with administration and discuss possible repercussions.

WPS Students will no longer be allowed to use headphones for personal use in any place of the school building unless a) the headphones are being used for specific class content (i.e. sound editing a video for a project); or b) they are being used before or after school hours (8:30am-3:30pm). Students should not have Spotify or any other streaming music program on their school computers.

Student Name (Print) _____

Student Signature _____ Date _____

Parent/Guardian Signature _____ Date _____

Please return by September 10, 2021