

Mathematics Department Handbook

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1. Introduction

Welcome to the Mathematics Department at ICS. This Subject Handbook is designed to provide an overview of the Mathematics Department's policies, procedures, and curriculum. It serves as a guide for teachers, students, and parents to ensure a cohesive and effective learning environment.

2. Department Vision and Mission

Vision:

The vision of the ICS Secondary Math Department is to inspire and equip students with a strong foundation in mathematical thinking, grounded in a Christian worldview. We strive to foster a love for learning and a sense of curiosity, encouraging students to see the beauty and order in God's creation through the lens of mathematics.

Mission:

We aim to create a supportive and inclusive environment where students are challenged to think critically and develop resilience. By integrating faith with academics, we seek to cultivate not only competent mathematicians but also compassionate individuals who view their skills as a means to serve others, become responsible stewards in the world, and glorify God in their pursuits.

3. ICS Teaching & Learning Philosophy

ICS Standards

ICS has a standards-based approach to education. This means we have clear and objective targets (standards) for learning in every subject, at every grade level. In the liberal arts (Math, Science and the Humanities) we emphasise the importance of knowledge, which is the basis for much of what we call 'skills'. In the creative arts (Music, Art and Drama) we emphasise the quality of both technique and interpretation. In Physical Education and Health we develop standards of physical capacity and skill.

Assessing learning of these standards is achieved by the use of proficiency rubrics, which clearly delineate a continuum from 'below standard' to 'approaching standard' to 'meeting standard' to 'exceeding standard'. Both formative and summative assessments are appropriate to the subject-specific standards. Theology is the "Queen of the Sciences', and so the Bible has the pre-eminent place in our curriculum, training students in a Biblical worldview and understanding of the 'whole counsel of God'.

ICS Teaching & Learning Principles

- 1. The Bible is our final authority in all matters of faith and conduct
- 2. We use evidence-based practice founded on good cognitive science
- 3. Optimal learning is knowledge-based and teacher-directed
- 4. The teaching cycle: explicit instruction, modelling, practice, feedback
- 5. The essence of a liberal arts education is deep reading, thinking, writing and discussion, in pursuit of goodness, truth and beauty.
- 6. We prioritise the known benefits of physical reading and handwriting
- 7. We prepare students to operate effectively in a dual-modal society: departmental handbooks outline where digital technology is effective in enhancing learning, and our curriculum policy details education in digital literacy
- 8. ICS partners with parents in mitigating the harms associated with screen-based childhood and learning, including our policies on homework and device-use

Assessment

Formative assessment refers to a variety of methods teachers use to gather evidence of students' academic progress over time. Formative feedback to students aims to help students understand what to aim for and how to achieve that.

Summative assessments are high-stakes assessments that are used to evaluate students' proficiency against ICS Standards in a particular unit, semester, or course.

4. Mathematics Department Curriculum Links

Curriculum Introduction

The ICS Mathematics curriculum prepares students for AP courses like Precalculus, Statistics, and Calculus while equipping them with lifelong skills. Our standards align with the Common Core State Standards for Mathematics, aiming to provide a high-quality education that lays the groundwork for understanding the world through Mathematics. We encourage students to cultivate curiosity about mathematical concepts and recognize how mathematics aids in problem-solving, data analysis, and modeling real-world scenarios.

Middle School

Content:

Grade 6 Math Scope and Sequence Grade 7 Math Scope and Sequence Pre-Algebra Scope and Sequence Grade 8 Math Scope and Sequence

High School

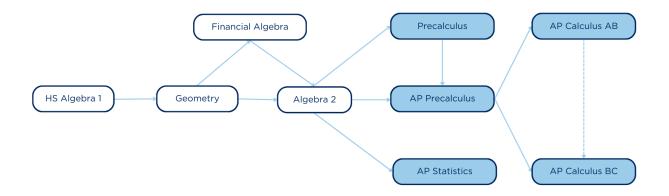
Content:

Algebra 1 Scope and Sequence
Geometry Scope and Sequence
Financial Algebra Scope and Sequence
Algebra 2 Scope and Sequence
Precalculus Scope and Sequence
AP Statistics Scope and Sequence
AP Calculus AB Scope and Sequence
AP Calculus BC Scope and Sequence

• Mathematics Pathways Grade 6 - Grade 12

Secondary Course Pathways - High School Course Guide

Mathematics Course Pathways



3 credits of Math are required for graduation. ICS recommends that students complete one Math credit per year of High School

5. School & Department Policies

General Classroom Practice

Students maintain Maths notebooks which must be brought to every lesson. Teachers are responsible for communicating Unit Rubrics at the beginning of every Unit of Study to students and parents as well as feedback on every assessment against the rubric.

Homework Policy

We adhere to the ICS Homework Policy

• Technology Policy

We adhere to the ICS Technology Policy

Assessment Policy

We adhere to the ICS Secondary Assessment Policy

• Health and Safety

Risk Assessments: Regular assessments to ensure a safe learning environment. All such guidelines are maintained in the ICS Safety and Security Policy

6. Co-curricular Clubs, Trips and Activities

Clubs

Math Club

Trips

o Final Math Competition venues will be advised.

Activities

The ICS Mathematics Department supports students in a number of annual competitions:

- American Mathematics Olympiad (AMO)
- Future Intelligence Students Olympiad (FISO)
- Fermat Math Olympiad (FMO)
- o International Mathematics Olympiad (IMEC)
- o International Mathematical Olympiad (IMO HK)
- Dragon Math Competition
- American Mathematics Competition (AMC)