Syllabus for MATH 5112 (Spring 2026)
Advanced Algebra II

Instructor:	Eric Marberg, eric.marberg@gmail.com Office: Room 3492 in Mathematics Department, Lift 25-26
Lectures:	Tuesdays and Thursdays, 1:30 PM to 2:50 PM Lectures in Room 2132B, near Lift 19
Website:	http://www.math.hkust.edu.hk/~emarberg/teaching/2026/Math5112/
Office hours:	By appointment.
Prerequisites:	MATH 5111 (Advanced Algebra I)
References:	Introduction to Representation Theory by Etingof et al. Galois Theory by Rössler
Outline:	This course will cover several advanced topics in algebra, including group representations, associative algebras, and field extensions. Building on MATH 5111, our focus will be on representation theory and Galois theory. To start, we will review the basics of abstract algebra and some main concepts in representation theory. We will then cover several important general results about representations of associative algebras. The second half of the course will study fields, field extensions, and Galois groups.
Grading:	Homework assignments every 1-2 weeks