



This is a brief outlook of Algebra.

The **GREEN circle** at the center, **Algebra**, are fundamental concepts and tools you will learn in the courses Algebra 1 and Algebra 2. These include linear algebra, groups, rings, and fields, some of which we have already discussed in the first part of our course.

The **RED circles** surrounding the center, are the major research branches most closely related to Algebra: **Algebraic Geometry, Algebraic Number Theory, and Representation Theory**.

Qiuqhen College offers undergraduate courses in each of these three areas, as well as many graduate courses.

The **BLUE texts** are more specific topics that are actively studied and researched within these areas.

In the latter half of our course, we aim to provide you with a glimpse into some of these research areas. We plan to delve into the following topics, through concrete examples:

(1) **Modular forms** and **elliptic curves**: which intersect with **Algebraic Geometry, Number Theory, Complex Geometry**

(2) **Representation of quivers**: which connect to **Representation Theory, Algebraic Geometry**