Books

Most of the following are textbooks at a graduate level, and some are referred to in the text:

W. Fulton, Algebraic curves, Springer. (This is the most down-to-earth and self-contained of the graduate texts; Ch. 1–6 are quite well suited to an undergraduate course, although the material is somewhat dry.)

I.R. Shafarevich, Basic algebraic geometry, Springer. (A graduate text, but Ch. I, and SII.1 are quite suitable material.)

P. Griffiths and J. Harris, Principles of algebraic geometry, Wiley. (Gives the complex analytic point of view.)

David Mumford, Algebraic geometry I, Complex projective varieties, Springer.

D. Mumford, Introduction to algebraic geometry, Harvard notes. (Not immediately very readable, but goes directly to the main points; many algebraic geometers of my generation learned their trade from these notes. Recently reissued as Springer LNM 1358, and therefore no longer a little red book.)

K. Kendig, Elementary algebraic geometry, Springer. (Treats the relation between algebraic geometry and complex analytic geometry.)

R. Hartshorne, Algebraic geometry, Springer. (This is the professional's handbook, and covers much more advanced material; Ch. I is an undergraduate course in bare outline.)

M. Berger, Geometry I and II, Springer. (Some of the material of the sections on quadratic forms and quadric hypersurfaces in II is especially relevant.)

M.F. Atiyah and I.G. Macdonald, Commutative algebra, Addison-Wesley. (An invaluable textbook.)

E. Kunz, Introduction to commutative algebra and algebraic geometry, Birkhäuser.

H. Matsumura, Commutative ring theory, Cambridge. (A more detailed text on commutative algebra.)

D. Mumford, Curves and their Jacobians, Univ. of Michigan Press. (Colloquial lectures, going quite deep quite fast.)

C.H. Clemens, A scrapbook of complex curves, Plenum. (Lots of fun.).

E. Brieskorn and H. Knörrer, Plane algebraic curves, Birkhäuser.

A. Beauville, Complex algebraic surfaces, LMS Lecture Notes, Cambridge.

J. Kollár, The structure of algebraic threefolds: An introduction to Mori's program, Bull. Amer. Math. Soc. 17 (1987), 211–273. (A nicely presented travel brochure to one active area of research. Mostly harmless.)

J.G. Semple and L. Roth, Introduction to algebraic geometry, Oxford. (A marvellous old book, full of information, but almost entirely lacking in rigour.)

J.L. Coolidge, Treatise on algebraic plane curves, Oxford and Dover.

Part I

Playing with plane curves