

An Invitation To Algebraic Geometry

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Algebraic Geometry - Daniel Perrin 2007-12-16

Aimed primarily at graduate students and beginning researchers, this book provides an introduction to algebraic geometry that is particularly suitable for those with no previous contact with the subject; it assumes only the standard background of undergraduate algebra. The book starts with easily-formulated problems with non-trivial solutions and uses these problems to introduce the fundamental tools of modern algebraic geometry: dimension; singularities; sheaves; varieties; and cohomology. A range of exercises is provided for each topic discussed, and a selection of problems and exam papers are collected in an appendix to provide material for further study.

Introduction to Plane Algebraic Curves - Ernst Kunz 2007-06-10

* Employs proven conception of teaching topics in commutative algebra through a focus on their applications to algebraic geometry, a significant departure from other works on plane algebraic curves in which the topological-analytic aspects are stressed *Requires only a basic knowledge of algebra, with all necessary algebraic facts collected into several appendices * Studies algebraic curves over an algebraically closed field K and those of prime characteristic, which can be applied to coding theory and cryptography * Covers filtered algebras, the associated graded rings and Rees rings to deduce basic facts about intersection theory of plane curves, applications of which are standard

tools of computer algebra * Examples, exercises, figures and suggestions for further study round out this fairly self-contained textbook

Mirror Symmetry and Algebraic Geometry - David A. Cox 1999

Mathematicians wanting to get into the field ... will find a very well written and encyclopaedic account of the mathematics which was needed in, and was developed from, what now might be termed classical mirror symmetry. --Bulletin of the LMS The book is highly recommended for everyone who wants to learn about the fascinating recent interplay between physics and mathematics. --Mathematical Reviews Mirror symmetry began when theoretical physicists made some astonishing predictions about rational curves on quintic hypersurfaces in four-dimensional projective space. Understanding the mathematics behind these predictions has been a substantial challenge. This book is a completely comprehensive monograph on mirror symmetry, covering the original observations by the physicists through the most recent progress made to date. Subjects discussed include toric varieties, Hodge theory, Kahler geometry, moduli of stable maps, Calabi-Yau manifolds, quantum cohomology, Gromov-Witten invariants, and the mirror theorem.

An Invitation to Knot Theory - Heather A. Dye 2018-09-03

The Only Undergraduate Textbook to Teach Both Classical and Virtual Knot Theory An Invitation to Knot Theory: Virtual and Classical gives advanced undergraduate students a gentle introduction to the field of

virtual knot theory and mathematical research. It provides the foundation for students to research knot theory and read journal articles on their own. Each chapter includes numerous examples, problems, projects, and suggested readings from research papers. The proofs are written as simply as possible using combinatorial approaches, equivalence classes, and linear algebra. The text begins with an introduction to virtual knots and counted invariants. It then covers the normalized f-polynomial (Jones polynomial) and other skein invariants before discussing algebraic invariants, such as the quandle and biquandle. The book concludes with two applications of virtual knots: textiles and quantum computation.

Using the Mathematics Literature - Kristine K. Fowler 2004-05-25

This reference serves as a reader-friendly guide to every basic tool and skill required in the mathematical library and helps mathematicians find resources in any format in the mathematics literature. It lists a wide range of standard texts, journals, review articles, newsgroups, and Internet and database tools for every major subfield in mathematics and details methods of access to primary literature sources of new research, applications, results, and techniques. Using the Mathematics Literature is the most comprehensive and up-to-date resource on mathematics literature in both print and electronic formats, presenting time-saving strategies for retrieval of the latest information.

An Invitation To Algebraic Numbers And Algebraic Functions -

Franz Halter-Koch 2020-05-18

The author offers a thorough presentation of the classical theory of algebraic numbers and algebraic functions which both in its conception and in many details differs from the current literature on the subject. The basic features are: Field-theoretic preliminaries and a detailed presentation of Dedekind's ideal theory including non-principal orders and various types of class groups; the classical theory of algebraic number fields with a focus on quadratic, cubic and cyclotomic fields; basics of the analytic theory including the prime ideal theorem, density results and the determination of the arithmetic by the class group; a thorough presentation of valuation theory including the theory of

difference, discriminants, and higher ramification. The theory of function fields is based on the ideal and valuation theory developed before; it presents the Riemann-Roch theorem on the basis of Weil differentials and highlights in detail the connection with classical differentials. The theory of congruence zeta functions and a proof of the Hasse-Weil theorem represent the culminating point of the volume. The volume is accessible with a basic knowledge in algebra and elementary number theory. It empowers the reader to follow the advanced number-theoretic literature, and is a solid basis for the study of the forthcoming volume on the foundations and main results of class field theory. Key features: • A thorough presentation of the theory of Algebraic Numbers and Algebraic Functions on an ideal and valuation-theoretic basis. • Several of the topics both in the number field and in the function field case were not presented before in this context. • Despite presenting many advanced topics, the text is easily readable. Franz Halter-Koch is professor emeritus at the university of Graz. He is the author of "Ideal Systems" (Marcel Dekker, 1998), "Quadratic Irrationals" (CRC, 2013), and a co-author of "Non-Unique Factorizations" (CRC 2006).

Invitation To Algebra: A Resource Compendium For Teachers, Advanced Undergraduate Students And Graduate Students In Mathematics - Vlastimil Dlab 2020-06-09

This book presents a compendium style account of a comprehensive mathematical journey from Arithmetic to Algebra. It contains material that is helpful to graduate and advanced undergraduate students in mathematics, university and college professors teaching mathematics, as well as some mathematics teachers teaching in the final year of high school. A successful teacher must know more than what a particular course curriculum asks for. A number of topics that are missing in present-day textbooks, and which may be attractive to students at the graduate or advanced undergraduate level in mathematics, for example, continued fractions, arithmetic progressions of higher order, complex numbers in plane geometry, differential schemes, path semigroups and path algebras, have been carefully presented. This reflects the aim of the book to attract students to mathematics.

An Invitation to Mathematical Physics and Its History - Jont Allen
2020-09-22

This state of the art book takes an applications based approach to teaching mathematics to engineering and applied sciences students. The book lays emphasis on associating mathematical concepts with their physical counterparts, training students of engineering in mathematics to help them learn how things work. The book covers the concepts of number systems, algebra equations and calculus through discussions on mathematics and physics, discussing their intertwined history in a chronological order. The book includes examples, homework problems, and exercises. This book can be used to teach a first course in engineering mathematics or as a refresher on basic mathematical physics. Besides serving as core textbook, this book will also appeal to undergraduate students with cross-disciplinary interests as a supplementary text or reader.

A Classical Invitation to Algebraic Numbers and Class Fields - Harvey Cohn 2012-12-06

"Artin's 1932 Göttingen Lectures on Class Field Theory" and
"Connections between Algebraic Number Theory and Integral Matrices"

An Invitation to Algebraic Geometry - Karen Smith 2004-01-27

This is a description of the underlying principles of algebraic geometry, some of its important developments in the twentieth century, and some of the problems that occupy its practitioners today. It is intended for the working or the aspiring mathematician who is unfamiliar with algebraic geometry but wishes to gain an appreciation of its foundations and its goals with a minimum of prerequisites. Few algebraic prerequisites are presumed beyond a basic course in linear algebra.

Elliptic Polynomials - J.S. Lomont 2000-08-31

A remarkable interplay exists between the fields of elliptic functions and orthogonal polynomials. In the first monograph to explore their connections, *Elliptic Polynomials* combines these two areas of study, leading to an interesting development of some basic aspects of each. It presents new material about various classes of polynomials and about the odd Jacobi elliptic functions and their inverses. The term elliptic

polynomials refers to the polynomials generated by odd elliptic integrals and elliptic functions. In studying these, the authors consider such things as orthogonality and the construction of weight functions and measures, finding structure constants and interesting inequalities, and deriving useful formulas and evaluations. Although some of the material may be familiar, it establishes a new mathematical field that intersects with classical subjects at many points. Its wealth of information on important properties of polynomials and clear, accessible presentation make *Elliptic Polynomials* valuable to those in real and complex analysis, number theory, and combinatorics, and will undoubtedly generate further research.

Differential Forms in Algebraic Topology - Raoul Bott 2013-04-17

Developed from a first-year graduate course in algebraic topology, this text is an informal introduction to some of the main ideas of contemporary homotopy and cohomology theory. The materials are structured around four core areas: de Rham theory, the Čech-de Rham complex, spectral sequences, and characteristic classes. By using the de Rham theory of differential forms as a prototype of cohomology, the machineries of algebraic topology are made easier to assimilate. With its stress on concreteness, motivation, and readability, this book is equally suitable for self-study and as a one-semester course in topology.

An Invitation to Arithmetic Geometry - Dino Lorenzini 1996-02-22

Extremely carefully written, masterfully thought out, and skillfully arranged introduction ... to the arithmetic of algebraic curves, on the one hand, and to the algebro-geometric aspects of number theory, on the other hand. ... an excellent guide for beginners in arithmetic geometry, just as an interesting reference and methodical inspiration for teachers of the subject ... a highly welcome addition to the existing literature. -- Zentralblatt MATH The interaction between number theory and algebraic geometry has been especially fruitful. In this volume, the author gives a unified presentation of some of the basic tools and concepts in number theory, commutative algebra, and algebraic geometry, and for the first time in a book at this level, brings out the deep analogies between them. The geometric viewpoint is stressed

throughout the book. Extensive examples are given to illustrate each new concept, and many interesting exercises are given at the end of each chapter. Most of the important results in the one-dimensional case are proved, including Bombieri's proof of the Riemann Hypothesis for curves over a finite field. While the book is not intended to be an introduction to schemes, the author indicates how many of the geometric notions introduced in the book relate to schemes, which will aid the reader who goes to the next level of this rich subject.

Real Algebraic Geometry - Vladimir I. Arnold 2013-04-15

This book is concerned with one of the most fundamental questions of mathematics: the relationship between algebraic formulas and geometric images. At one of the first international mathematical congresses (in Paris in 1900), Hilbert stated a special case of this question in the form of his 16th problem (from his list of 23 problems left over from the nineteenth century as a legacy for the twentieth century). In spite of the simplicity and importance of this problem (including its numerous applications), it remains unsolved to this day (although, as you will now see, many remarkable results have been discovered).

Algebraic Curves and Riemann Surfaces - Rick Miranda 1995

The book was easy to understand, with many examples. The exercises were well chosen, and served to give further examples and developments of the theory. --William Goldman, University of Maryland In this book, Miranda takes the approach that algebraic curves are best encountered for the first time over the complex numbers, where the reader's classical intuition about surfaces, integration, and other concepts can be brought into play. Therefore, many examples of algebraic curves are presented in the first chapters. In this way, the book begins as a primer on Riemann surfaces, with complex charts and meromorphic functions taking center stage. But the main examples come from projective curves, and slowly but surely the text moves toward the algebraic category. Proofs of the Riemann-Roch and Serre Duality Theorems are presented in an algebraic manner, via an adaptation of the adelic proof, expressed completely in terms of solving a Mittag-Leffler problem. Sheaves and cohomology are introduced as a unifying device in the latter chapters, so that their utility

and naturalness are immediately obvious. Requiring a background of one semester of complex variable theory and a year of abstract algebra, this is an excellent graduate textbook for a second-semester course in complex variables or a year-long course in algebraic geometry.

Topics in Galois Theory - Jean-Pierre Serre 2016-04-19

This book is based on a course given by the author at Harvard University in the fall semester of 1988. The course focused on the inverse problem of Galois Theory: the construction of field extensions having a given finite group as Galois group. In the first part of the book, classical methods and results, such as the Scholz and Reichardt constructi

A Concise Course in Algebraic Topology - J. P. May 1999-09

Algebraic topology is a basic part of modern mathematics, and some knowledge of this area is indispensable for any advanced work relating to geometry, including topology itself, differential geometry, algebraic geometry, and Lie groups. This book provides a detailed treatment of algebraic topology both for teachers of the subject and for advanced graduate students in mathematics either specializing in this area or continuing on to other fields. J. Peter May's approach reflects the enormous internal developments within algebraic topology over the past several decades, most of which are largely unknown to mathematicians in other fields. But he also retains the classical presentations of various topics where appropriate. Most chapters end with problems that further explore and refine the concepts presented. The final four chapters provide sketches of substantial areas of algebraic topology that are normally omitted from introductory texts, and the book concludes with a list of suggested readings for those interested in delving further into the field.

Elementary Algebraic Geometry - Klaus Hulek 2003

This book is a true introduction to the basic concepts and techniques of algebraic geometry. The language is purposefully kept on an elementary level, avoiding sheaf theory and cohomology theory. The introduction of new algebraic concepts is always motivated by a discussion of the corresponding geometric ideas. The main point of the book is to illustrate the interplay between abstract theory and specific examples. The book

contains numerous problems that illustrate the general theory. The text is suitable for advanced undergraduates and beginning graduate students. It contains sufficient material for a one-semester course. The reader should be familiar with the basic concepts of modern algebra. A course in one complex variable would be helpful, but is not necessary.

Homotopy Theory of Higher Categories - Carlos Simpson 2011-10-20

The study of higher categories is attracting growing interest for its many applications in topology, algebraic geometry, mathematical physics and category theory. In this highly readable book, Carlos Simpson develops a full set of homotopical algebra techniques and proposes a working theory of higher categories. Starting with a cohesive overview of the many different approaches currently used by researchers, the author proceeds with a detailed exposition of one of the most widely used techniques: the construction of a Cartesian Quillen model structure for higher categories. The fully iterative construction applies to enrichment over any Cartesian model category, and yields model categories for weakly associative n -categories and Segal n -categories. A corollary is the construction of higher functor categories which fit together to form the $(n+1)$ -category of n -categories. The approach uses Tamsamani's definition based on Segal's ideas, iterated as in Pelissier's thesis using modern techniques due to Barwick, Bergner, Lurie and others.

Hyperplane Arrangements - Alexandru Dimca 2017-03-28

This textbook provides an accessible introduction to the rich and beautiful area of hyperplane arrangement theory, where discrete mathematics, in the form of combinatorics and arithmetic, meets continuous mathematics, in the form of the topology and Hodge theory of complex algebraic varieties. The topics discussed in this book range from elementary combinatorics and discrete geometry to more advanced material on mixed Hodge structures, logarithmic connections and Milnor fibrations. The author covers a lot of ground in a relatively short amount of space, with a focus on defining concepts carefully and giving proofs of theorems in detail where needed. Including a number of surprising results and tantalizing open problems, this timely book also serves to acquaint the reader with the rapidly expanding literature on the subject.

Hyperplane Arrangements will be particularly useful to graduate students and researchers who are interested in algebraic geometry or algebraic topology. The book contains numerous exercises at the end of each chapter, making it suitable for courses as well as self-study.

Invitation to Nonlinear Algebra - Mateusz Michałek 2021-03-22

Nonlinear algebra provides modern mathematical tools to address challenges arising in the sciences and engineering. It is useful everywhere, where polynomials appear: in particular, data and computational sciences, statistics, physics, optimization. The book offers an invitation to this broad and fast-developing area. It is not an extensive encyclopedia of known results, but rather a first introduction to the subject, allowing the reader to enter into more advanced topics. It was designed as the next step after linear algebra and well before abstract algebraic geometry. The book presents both classical topics—like the Nullstellensatz and primary decomposition—and more modern ones—like tropical geometry and semidefinite programming. The focus lies on interactions and applications. Each of the thirteen chapters introduces fundamental concepts. The book may be used for a one-semester course, and the over 200 exercises will help the readers to deepen their understanding of the subject.

Invitation to Geometry - Z. A. Melzak 2014-01-15

Intended for students of many different backgrounds with only a modest knowledge of mathematics, this text features self-contained chapters that can be adapted to several types of geometry courses. Only a slight acquaintance with mathematics beyond the high-school level is necessary, including some familiarity with calculus and linear algebra. This text's introductions to several branches of geometry feature topics and treatments based on memorability and relevance. The author emphasizes connections with calculus and simple mechanics, focusing on developing students' grasp of spatial relationships. Subjects include classical Euclidean material, polygonal and circle isoperimetry, conics and Pascal's theorem, geometrical optimization, geometry and trigonometry on a sphere, graphs, convexity, and elements of differential geometry of curves. Additional material may be conveniently introduced

in several places, and each chapter concludes with exercises of varying degrees of difficulty.

An Invitation to Noncommutative Geometry - Masoud Khalkhali 2008

A walk in the noncommutative garden / A. Connes and M. Marcolli -- Renormalization of noncommutative quantum field theory / H. Grosse and R. Wulkenhaar -- Lectures on noncommutative geometry / M. Khalkhali -- Noncommutative bundles and instantons in Tehran / G. Landi and W. D. van Suijlekom -- Lecture notes on noncommutative algebraic geometry and noncommutative tori / S. Mahanta -- Lectures on derived and triangulated categories / B. Noohi -- Examples of noncommutative manifolds: complex tori and spherical manifolds / J. Plazas -- D-branes in noncommutative field theory / R. J. Szabo.

Introduction to the Theory of Schemes - Yuri I. Manin 2018-05-15

This English edition of Yuri I. Manin's well-received lecture notes provides a concise but extremely lucid exposition of the basics of algebraic geometry and sheaf theory. The lectures were originally held in Moscow in the late 1960s, and the corresponding preprints were widely circulated among Russian mathematicians. This book will be of interest to students majoring in algebraic geometry and theoretical physics (high energy physics, solid body, astrophysics) as well as to researchers and scholars in these areas. "This is an excellent introduction to the basics of Grothendieck's theory of schemes; the very best first reading about the subject that I am aware of. I would heartily recommend every grad student who wants to study algebraic geometry to read it prior to reading more advanced textbooks." - Alexander Beilinson

An Invitation To Noncommutative Geometry - Matilde Marcolli 2008-02-11

This is the first existing volume that collects lectures on this important and fast developing subject in mathematics. The lectures are given by leading experts in the field and the range of topics is kept as broad as possible by including both the algebraic and the differential aspects of noncommutative geometry as well as recent applications to theoretical physics and number theory.

Algebraic Geometry - Joe Harris 2013-11-11

"This book succeeds brilliantly by concentrating on a number of core topics...and by treating them in a hugely rich and varied way. The author ensures that the reader will learn a large amount of classical material and perhaps more importantly, will also learn that there is no one approach to the subject. The essence lies in the range and interplay of possible approaches. The author is to be congratulated on a work of deep and enthusiastic scholarship." --MATHEMATICAL REVIEWS

An Invitation to Morse Theory - Liviu Nicolaescu 2011-12-02

This self-contained treatment of Morse theory focuses on applications and is intended for a graduate course on differential or algebraic topology, and will also be of interest to researchers. This is the first textbook to include topics such as Morse-Smale flows, Floer homology, min-max theory, moment maps and equivariant cohomology, and complex Morse theory. The reader is expected to have some familiarity with cohomology theory and differential and integral calculus on smooth manifolds. Some features of the second edition include added applications, such as Morse theory and the curvature of knots, the cohomology of the moduli space of planar polygons, and the Duistermaat-Heckman formula. The second edition also includes a new chapter on Morse-Smale flows and Whitney stratifications, many new exercises, and various corrections from the first edition.

An Invitation to Quantum Cohomology - Joachim Kock 2007-12-27

Elementary introduction to stable maps and quantum cohomology presents the problem of counting rational plane curves Viewpoint is mostly that of enumerative geometry Emphasis is on examples, heuristic discussions, and simple applications to best convey the intuition behind the subject Ideal for self-study, for a mini-course in quantum cohomology, or as a special topics text in a standard course in intersection theory

Invitation to the Mathematics of Fermat-Wiles - Yves Hellegouarch 2001-09-24

Assuming only modest knowledge of undergraduate level math, Invitation to the Mathematics of Fermat-Wiles presents diverse concepts required to comprehend Wiles' extraordinary proof. Furthermore, it

places these concepts in their historical context. This book can be used in introduction to mathematics theories courses and in special topics courses on Fermat's last theorem. It contains themes suitable for development by students as an introduction to personal research as well as numerous exercises and problems. However, the book will also appeal to the inquiring and mathematically informed reader intrigued by the unraveling of this fascinating puzzle. Rigorously presents the concepts required to understand Wiles' proof, assuming only modest undergraduate level math Sets the math in its historical context Contains several themes that could be further developed by student research and numerous exercises and problems Written by Yves Hellegouarch, who himself made an important contribution to the proof of Fermat's last theorem

A Royal Road to Algebraic Geometry - Audun Holme 2011-10-06

This book is about modern algebraic geometry. The title A Royal Road to Algebraic Geometry is inspired by the famous anecdote about the king asking Euclid if there really existed no simpler way for learning geometry, than to read all of his work Elements. Euclid is said to have answered: "There is no royal road to geometry!" The book starts by explaining this enigmatic answer, the aim of the book being to argue that indeed, in some sense there is a royal road to algebraic geometry. From a point of departure in algebraic curves, the exposition moves on to the present shape of the field, culminating with Alexander Grothendieck's theory of schemes. Contemporary homological tools are explained. The reader will follow a directed path leading up to the main elements of modern algebraic geometry. When the road is completed, the reader is empowered to start navigating in this immense field, and to open up the door to a wonderful field of research. The greatest scientific experience of a lifetime!

Arithmetics - Marc Hindry 2011-08-05

Number theory is a branch of mathematics which draws its vitality from a rich historical background. It is also traditionally nourished through interactions with other areas of research, such as algebra, algebraic geometry, topology, complex analysis and harmonic analysis. More

recently, it has made a spectacular appearance in the field of theoretical computer science and in questions of communication, cryptography and error-correcting codes. Providing an elementary introduction to the central topics in number theory, this book spans multiple areas of research. The first part corresponds to an advanced undergraduate course. All of the statements given in this part are of course accompanied by their proofs, with perhaps the exception of some results appearing at the end of the chapters. A copious list of exercises, of varying difficulty, are also included here. The second part is of a higher level and is relevant for the first year of graduate school. It contains an introduction to elliptic curves and a chapter entitled "Developments and Open Problems", which introduces and brings together various themes oriented toward ongoing mathematical research. Given the multifaceted nature of number theory, the primary aims of this book are to: - provide an overview of the various forms of mathematics useful for studying numbers - demonstrate the necessity of deep and classical themes such as Gauss sums - highlight the role that arithmetic plays in modern applied mathematics - include recent proofs such as the polynomial primality algorithm - approach subjects of contemporary research such as elliptic curves - illustrate the beauty of arithmetic The prerequisites for this text are undergraduate level algebra and a little topology of \mathbb{R}^n . It will be of use to undergraduates, graduates and phd students, and may also appeal to professional mathematicians as a reference text.

Geometry and Complexity Theory - J. M. Landsberg 2017-09-28

Two central problems in computer science are P vs NP and the complexity of matrix multiplication. The first is also a leading candidate for the greatest unsolved problem in mathematics. The second is of enormous practical and theoretical importance. Algebraic geometry and representation theory provide fertile ground for advancing work on these problems and others in complexity. This introduction to algebraic complexity theory for graduate students and researchers in computer science and mathematics features concrete examples that demonstrate the application of geometric techniques to real world problems. Written by a noted expert in the field, it offers numerous open questions to

motivate future research. Complexity theory has rejuvenated classical geometric questions and brought different areas of mathematics together in new ways. This book will show the beautiful, interesting, and important questions that have arisen as a result.

The Princeton Companion to Mathematics - Timothy Gowers 2010-07-18

This is a one-of-a-kind reference for anyone with a serious interest in mathematics. Edited by Timothy Gowers, a recipient of the Fields Medal, it presents nearly two hundred entries, written especially for this book by some of the world's leading mathematicians, that introduce basic mathematical tools and vocabulary; trace the development of modern mathematics; explain essential terms and concepts; examine core ideas in major areas of mathematics; describe the achievements of scores of famous mathematicians; explore the impact of mathematics on other disciplines such as biology, finance, and music--and much, much more. Unparalleled in its depth of coverage, The Princeton Companion to Mathematics surveys the most active and exciting branches of pure mathematics. Accessible in style, this is an indispensable resource for undergraduate and graduate students in mathematics as well as for researchers and scholars seeking to understand areas outside their specialties. Features nearly 200 entries, organized thematically and written by an international team of distinguished contributors Presents major ideas and branches of pure mathematics in a clear, accessible style Defines and explains important mathematical concepts, methods, theorems, and open problems Introduces the language of mathematics and the goals of mathematical research Covers number theory, algebra, analysis, geometry, logic, probability, and more Traces the history and development of modern mathematics Profiles more than ninety-five mathematicians who influenced those working today Explores the influence of mathematics on other disciplines Includes bibliographies, cross-references, and a comprehensive index Contributors include: Graham Allan, Noga Alon, George Andrews, Tom Archibald, Sir Michael Atiyah, David Aubin, Joan Bagaria, Keith Ball, June Barrow-Green, Alan Beardon, David D. Ben-Zvi, Vitaly Bergelson, Nicholas Bingham, Béla Bollobás, Henk Bos, Bodil Branner, Martin R. Bridson, John P. Burgess,

Kevin Buzzard, Peter J. Cameron, Jean-Luc Chabert, Eugenia Cheng, Clifford C. Cocks, Alain Connes, Leo Corry, Wolfgang Coy, Tony Crilly, Serafina Cuomo, Mihalis Dafermos, Partha Dasgupta, Ingrid Daubechies, Joseph W. Dauben, John W. Dawson Jr., Francois de Gandt, Persi Diaconis, Jordan S. Ellenberg, Lawrence C. Evans, Florence Fasanelli, Anita Burdman Feferman, Solomon Feferman, Charles Fefferman, Della Fenster, José Ferreirós, David Fisher, Terry Gannon, A. Gardiner, Charles C. Gillispie, Oded Goldreich, Catherine Goldstein, Fernando Q. Gouvêa, Timothy Gowers, Andrew Granville, Ivor Grattan-Guinness, Jeremy Gray, Ben Green, Ian Grojnowski, Niccolò Guicciardini, Michael Harris, Ulf Hashagen, Nigel Higson, Andrew Hodges, F. E. A. Johnson, Mark Joshi, Kiran S. Kedlaya, Frank Kelly, Sergiu Klainerman, Jon Kleinberg, Israel Kleiner, Jacek Klinowski, Eberhard Knobloch, János Kollár, T. W. Körner, Michael Krivelevich, Peter D. Lax, Imre Leader, Jean-François Le Gall, W. B. R. Lickorish, Martin W. Liebeck, Jesper Lützen, Des MacHale, Alan L. Mackay, Shahn Majid, Lech Maligranda, David Marker, Jean Mawhin, Barry Mazur, Dusa McDuff, Colin McLarty, Bojan Mohar, Peter M. Neumann, Catherine Nolan, James Norris, Brian Osserman, Richard S. Palais, Marco Panza, Karen Hunger Parshall, Gabriel P. Paternain, Jeanne Peiffer, Carl Pomerance, Helmut Pulte, Bruce Reed, Michael C. Reed, Adrian Rice, Eleanor Robson, Igor Rodnianski, John Roe, Mark Ronan, Edward Sandifer, Tilman Sauer, Norbert Schappacher, Andrzej Schinzel, Erhard Scholz, Reinhard Siegmund-Schultze, Gordon Slade, David J. Spiegelhalter, Jacqueline Stedall, Arild Stubhaug, Madhu Sudan, Terence Tao, Jamie Tappenden, C. H. Taubes, Rüdiger Thiele, Burt Totaro, Lloyd N. Trefethen, Dirk van Dalen, Richard Weber, Dominic Welsh, Avi Wigderson, Herbert Wilf, David Wilkins, B. Yandell, Eric Zaslow, Doron Zeilberger

Undergraduate Algebraic Geometry - Miles Reid 1988-12-15

Algebraic geometry is, essentially, the study of the solution of equations and occupies a central position in pure mathematics. This short and readable introduction to algebraic geometry will be ideal for all undergraduate mathematicians coming to the subject for the first time. With the minimum of prerequisites, Dr Reid introduces the reader to the

basic concepts of algebraic geometry including: plane conics, cubics and the group law, affine and projective varieties, and non-singularity and dimension. He is at pains to stress the connections the subject has with commutative algebra as well as its relation to topology, differential geometry, and number theory. The book arises from an undergraduate course given at the University of Warwick and contains numerous examples and exercises illustrating the theory.

Noncommutative Geometry - Alain Connes 2003-12-08

Noncommutative Geometry is one of the most deep and vital research subjects of present-day Mathematics. Its development, mainly due to Alain Connes, is providing an increasing number of applications and deeper insights for instance in Foliations, K-Theory, Index Theory, Number Theory but also in Quantum Physics of elementary particles. The purpose of the Summer School in Martina Franca was to offer a fresh invitation to the subject and closely related topics; the contributions in this volume include the four main lectures, cover advanced developments and are delivered by prominent specialists.

Algebraic Curves - William Fulton 1989

An Invitation to Algebraic Geometry - Karen E. Smith 2013-03-09

This is a description of the underlying principles of algebraic geometry, some of its important developments in the twentieth century, and some of the problems that occupy its practitioners today. It is intended for the working or the aspiring mathematician who is unfamiliar with algebraic geometry but wishes to gain an appreciation of its foundations and its goals with a minimum of prerequisites. Few algebraic prerequisites are presumed beyond a basic course in linear algebra.

Algebraic Geometry - Robin Hartshorne 2013-06-29

An introduction to abstract algebraic geometry, with the only prerequisites being results from commutative algebra, which are stated as needed, and some elementary topology. More than 400 exercises distributed throughout the book offer specific examples as well as more

specialised topics not treated in the main text, while three appendices present brief accounts of some areas of current research. This book can thus be used as textbook for an introductory course in algebraic geometry following a basic graduate course in algebra. Robin Hartshorne studied algebraic geometry with Oscar Zariski and David Mumford at Harvard, and with J.-P. Serre and A. Grothendieck in Paris. He is the author of "Residues and Duality", "Foundations of Projective Geometry", "Ample Subvarieties of Algebraic Varieties", and numerous research titles.

The Geometry of Schemes - David Eisenbud 2006-04-06

Grothendieck's beautiful theory of schemes permeates modern algebraic geometry and underlies its applications to number theory, physics, and applied mathematics. This simple account of that theory emphasizes and explains the universal geometric concepts behind the definitions. In the book, concepts are illustrated with fundamental examples, and explicit calculations show how the constructions of scheme theory are carried out in practice.

An Invitation to Web Geometry - Jorge Vitório Pereira 2015-02-23

This book takes an in-depth look at abelian relations of codimension one webs in the complex analytic setting. In its classical form, web geometry consists in the study of webs up to local diffeomorphisms. A significant part of the theory revolves around the concept of abelian relation, a particular kind of functional relation among the first integrals of the foliations of a web. Two main focuses of the book include how many abelian relations can a web carry and which webs are carrying the maximal possible number of abelian relations. The book offers complete proofs of both Chern's bound and Trépreau's algebraization theorem, including all the necessary prerequisites that go beyond elementary complex analysis or basic algebraic geometry. Most of the examples known up to date of non-algebraizable planar webs of maximal rank are discussed in detail. A historical account of the algebraization problem for maximal rank webs of codimension one is also presented.