

MATH IN SOCIETY 107

MATH IN SOCIETY 107 SERVES AS A FUNDAMENTAL COURSE DESIGNED TO ILLUSTRATE THE PRACTICAL APPLICATIONS OF MATHEMATICS WITHIN EVERYDAY LIFE AND VARIOUS SOCIETAL CONTEXTS. THIS COURSE EMPHASIZES UNDERSTANDING MATHEMATICAL CONCEPTS BEYOND THEORETICAL FRAMEWORKS BY EXPLORING REAL-WORLD EXAMPLES THAT IMPACT INDIVIDUALS AND COMMUNITIES. THE INTEGRATION OF QUANTITATIVE REASONING, DATA INTERPRETATION, AND PROBLEM-SOLVING SKILLS PREPARES STUDENTS TO NAVIGATE THE INCREASINGLY DATA-DRIVEN WORLD EFFECTIVELY. BY FOCUSING ON TOPICS SUCH AS STATISTICS, FINANCIAL LITERACY, VOTING SYSTEMS, AND LOGICAL REASONING, MATH IN SOCIETY 107 FOSTERS CRITICAL THINKING AND INFORMED DECISION-MAKING. THIS ARTICLE PROVIDES A COMPREHENSIVE OVERVIEW OF THE KEY THEMES COVERED IN MATH IN SOCIETY 107, HIGHLIGHTING THE IMPORTANCE OF MATHEMATICS IN SOCIAL STRUCTURES, ECONOMICS, AND TECHNOLOGY. THE DISCUSSION WILL ALSO COVER THE ROLE OF MATHEMATICS IN ADDRESSING SOCIAL ISSUES AND ENHANCING CIVIC ENGAGEMENT. THE FOLLOWING SECTIONS DETAIL THESE ASPECTS TO OFFER A THOROUGH UNDERSTANDING OF HOW MATH CONNECTS TO SOCIETAL FUNCTIONS.

- THE ROLE OF MATHEMATICS IN SOCIAL DECISION-MAKING
- FINANCIAL LITERACY AND ECONOMIC APPLICATIONS
- STATISTICS AND DATA INTERPRETATION IN SOCIETY
- MATHEMATICAL MODELS IN TECHNOLOGY AND ENVIRONMENT
- MATHEMATICS IN VOTING SYSTEMS AND FAIR REPRESENTATION

THE ROLE OF MATHEMATICS IN SOCIAL DECISION-MAKING

MATHEMATICS PLAYS A CRUCIAL ROLE IN SHAPING SOCIAL DECISIONS BY PROVIDING TOOLS FOR LOGICAL ANALYSIS AND QUANTITATIVE ASSESSMENT. MATH IN SOCIETY 107 INTRODUCES STUDENTS TO VARIOUS METHODS OF REASONING THAT HELP EVALUATE SOCIAL POLICIES, RESOURCE ALLOCATION, AND COMMUNITY PLANNING. UNDERSTANDING NUMERICAL DATA AND PROBABILISTIC MODELS ALLOWS INDIVIDUALS TO ASSESS RISKS, BENEFITS, AND OUTCOMES IN A STRUCTURED WAY. THIS SECTION EXPLORES HOW MATHEMATICAL THINKING SUPPORTS SOCIAL JUSTICE INITIATIVES, PUBLIC HEALTH STRATEGIES, AND ETHICAL CONSIDERATIONS IN POLICYMAKING.

LOGICAL REASONING AND CRITICAL THINKING

LOGICAL REASONING FORMS THE BACKBONE OF EFFECTIVE DECISION-MAKING PROCESSES IN SOCIETY. MATH IN SOCIETY 107 EMPHASIZES THE DEVELOPMENT OF DEDUCTIVE AND INDUCTIVE REASONING SKILLS, ENABLING LEARNERS TO IDENTIFY VALID ARGUMENTS AND DETECT FALLACIES. THESE SKILLS ARE ESSENTIAL FOR ANALYZING SOCIAL ISSUES, DEBATES, AND LEGISLATIVE PROPOSALS. BY MASTERING LOGICAL STRUCTURES, INDIVIDUALS CAN CONTRIBUTE TO MORE TRANSPARENT AND RATIONAL PUBLIC DISCOURSE.

QUANTITATIVE ANALYSIS IN SOCIAL SCIENCES

QUANTITATIVE METHODS SUCH AS SURVEYS, EXPERIMENTS, AND STATISTICAL ANALYSIS ARE FUNDAMENTAL IN SOCIAL SCIENCE RESEARCH. MATH IN SOCIETY 107 COVERS THE BASICS OF INTERPRETING NUMERICAL DATA TO UNDERSTAND SOCIAL TRENDS AND BEHAVIORS. THIS KNOWLEDGE IS VITAL FOR PROFESSIONALS IN SOCIOLOGY, PSYCHOLOGY, AND POLITICAL SCIENCE WHO RELY ON MATH TO VALIDATE HYPOTHESES AND DEVELOP EVIDENCE-BASED POLICIES.

FINANCIAL LITERACY AND ECONOMIC APPLICATIONS

FINANCIAL LITERACY IS A KEY COMPONENT OF MATH IN SOCIETY 107, FOCUSING ON PRACTICAL SKILLS NECESSARY FOR PERSONAL AND COMMUNAL ECONOMIC WELL-BEING. THIS SECTION ADDRESSES FUNDAMENTAL CONCEPTS LIKE BUDGETING, INTEREST RATES, LOANS, AND INVESTMENTS, ILLUSTRATING HOW MATHEMATICS INFORMS EVERYDAY FINANCIAL DECISIONS. UNDERSTANDING THESE PRINCIPLES EMPOWERS INDIVIDUALS TO MANAGE THEIR RESOURCES EFFECTIVELY AND PROMOTES ECONOMIC STABILITY WITHIN SOCIETY.

BUDGETING AND PERSONAL FINANCE

EFFECTIVE BUDGETING REQUIRES A SOLID GRASP OF ARITHMETIC AND PERCENTAGE CALCULATIONS. MATH IN SOCIETY 107 TEACHES STUDENTS TO CREATE AND MAINTAIN BUDGETS THAT BALANCE INCOME AND EXPENSES, HELPING PREVENT DEBT ACCUMULATION. THIS SKILLSET IS ESSENTIAL FOR FINANCIAL INDEPENDENCE AND LONG-TERM PLANNING.

INTEREST RATES AND LOANS

INTEREST CALCULATIONS, INCLUDING SIMPLE AND COMPOUND INTEREST, ARE CRITICAL IN UNDERSTANDING LOANS, CREDIT CARDS, AND MORTGAGES. THIS KNOWLEDGE ASSISTS CONSUMERS IN EVALUATING BORROWING COSTS AND MAKING INFORMED CHOICES ABOUT DEBT MANAGEMENT. MATH IN SOCIETY 107 PROVIDES CLEAR EXPLANATIONS AND PRACTICAL EXAMPLES TO ILLUSTRATE THESE CONCEPTS.

INVESTMENTS AND FINANCIAL GROWTH

INVESTMENT STRATEGIES RELY ON MATHEMATICAL MODELS TO PROJECT FUTURE EARNINGS AND ASSESS RISKS. BY LEARNING ABOUT RATES OF RETURN, DIVERSIFICATION, AND INFLATION, STUDENTS GAIN INSIGHTS INTO WEALTH ACCUMULATION AND ECONOMIC GROWTH. THIS SECTION ALSO DISCUSSES THE IMPORTANCE OF FINANCIAL PLANNING FOR RETIREMENT AND MAJOR LIFE EVENTS.

STATISTICS AND DATA INTERPRETATION IN SOCIETY

STATISTICS IS A CORNERSTONE OF MATH IN SOCIETY 107, EQUIPPING STUDENTS WITH THE SKILLS TO COLLECT, ANALYZE, AND INTERPRET DATA THAT INFLUENCES SOCIAL POLICIES AND BUSINESS DECISIONS. THIS SECTION HIGHLIGHTS THE SIGNIFICANCE OF STATISTICAL LITERACY IN UNDERSTANDING PUBLIC HEALTH INFORMATION, ECONOMIC REPORTS, AND MEDIA REPRESENTATIONS OF DATA.

DESCRIPTIVE AND INFERENTIAL STATISTICS

DESCRIPTIVE STATISTICS SUMMARIZE DATA SETS THROUGH MEASURES SUCH AS MEAN, MEDIAN, MODE, AND STANDARD DEVIATION. MATH IN SOCIETY 107 TEACHES THESE CONCEPTS TO HELP STUDENTS GRASP DATA DISTRIBUTION AND VARIABILITY. INFERENTIAL STATISTICS, INCLUDING HYPOTHESIS TESTING AND CONFIDENCE INTERVALS, ALLOW FOR MAKING PREDICTIONS ABOUT POPULATIONS BASED ON SAMPLE DATA.

DATA VISUALIZATION AND COMMUNICATION

EFFECTIVE COMMUNICATION OF STATISTICAL FINDINGS REQUIRES CLEAR DATA VISUALIZATION TECHNIQUES. THE COURSE COVERS GRAPHS, CHARTS, AND TABLES THAT AID IN INTERPRETING COMPLEX INFORMATION. THIS SKILL IS ESSENTIAL FOR ENGAGING WITH NEWS MEDIA, ACADEMIC RESEARCH, AND GOVERNMENTAL REPORTS CRITICALLY.

IDENTIFYING BIAS AND MISUSE OF DATA

RECOGNIZING BIAS AND MISUSE OF STATISTICS IS VITAL FOR INFORMED CITIZENSHIP. MATH IN SOCIETY 107 ADDRESSES COMMON PITFALLS SUCH AS MISLEADING GRAPHS, SELECTIVE DATA PRESENTATION, AND LOGICAL FALLACIES RELATED TO NUMBERS. AWARENESS OF THESE ISSUES STRENGTHENS CRITICAL EVALUATION OF INFORMATION SOURCES.

MATHEMATICAL MODELS IN TECHNOLOGY AND ENVIRONMENT

MATHEMATICAL MODELS ARE INDISPENSABLE TOOLS IN UNDERSTANDING AND SOLVING TECHNOLOGICAL AND ENVIRONMENTAL CHALLENGES. MATH IN SOCIETY 107 INTRODUCES MODELING TECHNIQUES THAT SIMULATE REAL-WORLD PHENOMENA, ENABLING PREDICTIONS AND OPTIMIZATIONS. THIS SECTION EXPLORES APPLICATIONS RANGING FROM CLIMATE CHANGE ANALYSIS TO ENGINEERING DESIGN.

ENVIRONMENTAL MODELING AND SUSTAINABILITY

MATHEMATICS HELPS MODEL ENVIRONMENTAL SYSTEMS SUCH AS POPULATION DYNAMICS, POLLUTION DISPERSION, AND RESOURCE CONSUMPTION. THESE MODELS INFORM SUSTAINABLE PRACTICES AND POLICY DECISIONS AIMED AT PROTECTING ECOSYSTEMS. MATH IN SOCIETY 107 EMPHASIZES THE ROLE OF QUANTITATIVE ANALYSIS IN PROMOTING ENVIRONMENTAL STEWARDSHIP.

TECHNOLOGY AND ENGINEERING APPLICATIONS

IN TECHNOLOGY, MATHEMATICAL MODELS OPTIMIZE PROCESSES IN MANUFACTURING, TELECOMMUNICATIONS, AND COMPUTER SCIENCE. CONCEPTS SUCH AS ALGORITHMS, OPTIMIZATION, AND SYSTEMS ANALYSIS ARE INTEGRAL TO INNOVATION AND EFFICIENCY. THIS COURSE DEMONSTRATES HOW MATH SUPPORTS TECHNOLOGICAL ADVANCEMENT AND PROBLEM-SOLVING.

SIMULATION AND PREDICTIVE ANALYSIS

SIMULATION TECHNIQUES USE MATHEMATICAL CONSTRUCTS TO REPLICATE COMPLEX SYSTEMS FOR TESTING AND EXPERIMENTATION WITHOUT REAL-WORLD RISKS. PREDICTIVE ANALYSIS, BASED ON HISTORICAL DATA, ASSISTS IN FORECASTING TRENDS AND OUTCOMES IN VARIOUS SECTORS. MATH IN SOCIETY 107 PROVIDES FOUNDATIONAL KNOWLEDGE OF THESE APPROACHES.

MATHEMATICS IN VOTING SYSTEMS AND FAIR REPRESENTATION

VOTING SYSTEMS AND FAIR REPRESENTATION ARE CRITICAL COMPONENTS OF DEMOCRATIC SOCIETIES WHERE MATHEMATICS

ENSURES EQUITY AND TRANSPARENCY. MATH IN SOCIETY 107 EXAMINES HOW DIFFERENT VOTING METHODS USE MATHEMATICAL PRINCIPLES TO AGGREGATE PREFERENCES AND ALLOCATE POLITICAL POWER.

TYPES OF VOTING SYSTEMS

VARIOUS VOTING SYSTEMS EXIST, INCLUDING PLURALITY, RUNOFF, RANKED-CHOICE, AND PROPORTIONAL REPRESENTATION. EACH SYSTEM INCORPORATES MATHEMATICAL RULES THAT INFLUENCE ELECTION OUTCOMES. UNDERSTANDING THESE METHODS ENABLES CITIZENS TO EVALUATE THE FAIRNESS AND EFFECTIVENESS OF ELECTORAL PROCESSES.

MATHEMATICAL FAIRNESS AND PARADOXES

MATHEMATICS REVEALS PARADOXES AND CHALLENGES IN DESIGNING VOTING SYSTEMS, SUCH AS ARROW'S IMPOSSIBILITY THEOREM AND THE CONDORCET PARADOX. MATH IN SOCIETY 107 INTRODUCES THESE CONCEPTS TO DEMONSTRATE THE COMPLEXITIES INVOLVED IN ACHIEVING TRULY FAIR REPRESENTATION.

APPLICATIONS IN POLICY AND GOVERNANCE

MATHEMATICAL ANALYSIS OF VOTING DATA ASSISTS POLICYMAKERS IN REFORMING ELECTORAL SYSTEMS TO ENHANCE DEMOCRATIC PARTICIPATION. THIS INCLUDES DISTRICTING FOR EQUAL REPRESENTATION AND IDENTIFYING GERRYMANDERING THROUGH QUANTITATIVE METRICS. THE COURSE HIGHLIGHTS THE SOCIETAL IMPACT OF APPLYING MATH TO GOVERNANCE.

- LOGICAL REASONING AND CRITICAL THINKING IN SOCIAL CONTEXTS
- BUDGETING, LOANS, AND INVESTMENT PRINCIPLES FOR FINANCIAL LITERACY
- STATISTICAL TOOLS FOR DATA INTERPRETATION AND COMMUNICATION
- ENVIRONMENTAL AND TECHNOLOGICAL MODELING FOR SUSTAINABLE SOLUTIONS
- VOTING SYSTEMS ANALYSIS FOR DEMOCRACY AND FAIR REPRESENTATION

FREQUENTLY ASKED QUESTIONS

WHAT IS THE SIGNIFICANCE OF MATH IN SOCIETY 107?

MATH IN SOCIETY 107 FOCUSES ON APPLYING MATHEMATICAL CONCEPTS TO REAL-WORLD SOCIAL ISSUES, HELPING STUDENTS UNDERSTAND AND ANALYZE DATA IN SOCIETAL CONTEXTS.

HOW DOES MATH IN SOCIETY 107 HELP IN UNDERSTANDING SOCIAL STATISTICS?

THE COURSE TEACHES STUDENTS HOW TO INTERPRET AND CRITICALLY EVALUATE SOCIAL STATISTICS, ENABLING INFORMED DECISION-MAKING AND AWARENESS OF SOCIETAL TRENDS.

WHAT TYPES OF MATHEMATICAL TOPICS ARE COVERED IN MATH IN SOCIETY 107?

TOPICS INCLUDE BASIC STATISTICS, PROBABILITY, DATA ANALYSIS, MATHEMATICAL MODELING, AND THEIR APPLICATIONS TO SOCIAL SCIENCES AND PUBLIC POLICY.

WHY IS STATISTICAL LITERACY IMPORTANT IN MATH IN SOCIETY 107?

STATISTICAL LITERACY ALLOWS STUDENTS TO DISCERN CREDIBLE INFORMATION FROM MISLEADING DATA, WHICH IS CRUCIAL FOR UNDERSTANDING SOCIAL ISSUES AND PARTICIPATING IN CIVIC DISCUSSIONS.

CAN MATH IN SOCIETY 107 IMPROVE CRITICAL THINKING SKILLS?

YES, BY ANALYZING REAL-WORLD DATA AND SOCIETAL PROBLEMS, STUDENTS DEVELOP CRITICAL THINKING SKILLS ESSENTIAL FOR EVALUATING INFORMATION AND CONSTRUCTING LOGICAL ARGUMENTS.

HOW IS MATH IN SOCIETY 107 RELEVANT TO CAREERS OUTSIDE OF MATHEMATICS?

THE COURSE EQUIPS STUDENTS WITH QUANTITATIVE REASONING SKILLS APPLICABLE IN FIELDS LIKE SOCIOLOGY, ECONOMICS, PUBLIC HEALTH, EDUCATION, AND JOURNALISM, WHERE DATA INTERPRETATION IS VALUABLE.

ADDITIONAL RESOURCES

1. *WEAPONS OF MATH DESTRUCTION: HOW BIG DATA INCREASES INEQUALITY AND THREATENS DEMOCRACY*

THIS BOOK BY CATHY O'NEIL EXPLORES THE DARK SIDE OF BIG DATA AND ALGORITHMS, REVEALING HOW MATHEMATICAL MODELS CAN PERPETUATE BIAS AND INEQUALITY IN SOCIETY. IT EXAMINES REAL-WORLD EXAMPLES FROM POLICING, HIRING, AND CREDIT SCORING, SHOWING HOW THESE "WEAPONS" CAN CAUSE HARM. THE BOOK CALLS FOR GREATER TRANSPARENCY AND ACCOUNTABILITY IN THE USE OF MATHEMATICAL MODELS.

2. *THE MATH BEHIND THE HEADLINES: UNDERSTANDING NUMBERS IN THE NEWS*

THIS BOOK HELPS READERS DECODE THE MATH USED IN NEWS STORIES, FROM STATISTICS ABOUT HEALTH AND CRIME TO ECONOMIC DATA. IT PROVIDES TOOLS TO CRITICALLY EVALUATE NUMERICAL CLAIMS AND UNDERSTAND THE IMPACT OF MATH ON PUBLIC OPINION AND POLICY. THE AUTHOR EMPHASIZES THE IMPORTANCE OF NUMERACY IN A MEDIA-SATURATED SOCIETY.

3. *MATHEMATICS AND SOCIAL JUSTICE: A CRITICAL INQUIRY*

THIS COLLECTION OF ESSAYS INVESTIGATES THE INTERSECTION OF MATHEMATICS EDUCATION AND SOCIAL JUSTICE ISSUES. IT DISCUSSES HOW MATH CAN EITHER REINFORCE SOCIAL INEQUALITIES OR BE A TOOL FOR EMPOWERMENT. THE BOOK ENCOURAGES EDUCATORS AND STUDENTS TO CONSIDER THE SOCIETAL IMPLICATIONS OF MATHEMATICAL KNOWLEDGE.

4. *THE ART OF STATISTICS: HOW TO LEARN FROM DATA*

BY DAVID SPIEGELHALTER, THIS BOOK INTRODUCES READERS TO THE PRINCIPLES OF STATISTICS AND HOW DATA SHAPES DECISION-MAKING IN SOCIETY. IT HIGHLIGHTS THE IMPORTANCE OF UNDERSTANDING VARIABILITY, UNCERTAINTY, AND RISK IN EVERYDAY LIFE. THE AUTHOR USES ENGAGING EXAMPLES TO MAKE COMPLEX CONCEPTS ACCESSIBLE.

5. *NUMBERS RULE: THE VEXING MATHEMATICS OF DEMOCRACY, FROM PLATO TO THE PRESENT*

THIS BOOK TRACES THE ROLE OF MATHEMATICS IN THE DEVELOPMENT OF DEMOCRATIC SYSTEMS AND VOTING METHODS. IT DISCUSSES THE CHALLENGES OF FAIR REPRESENTATION AND THE MATHEMATICAL PARADOXES THAT ARISE IN COLLECTIVE DECISION-MAKING. THE AUTHOR PROVIDES A HISTORICAL PERSPECTIVE ON HOW MATH INFLUENCES GOVERNANCE.

6. *DATA AND GOLIATH: THE HIDDEN BATTLES TO COLLECT YOUR DATA AND CONTROL YOUR WORLD*

BRUCE SCHNEIER'S WORK DELVES INTO THE MATHEMATICS BEHIND DATA COLLECTION AND SURVEILLANCE IN THE DIGITAL AGE. IT EXPLAINS HOW ALGORITHMS ANALYZE VAST AMOUNTS OF PERSONAL INFORMATION AND THE SOCIETAL IMPLICATIONS OF SUCH PRACTICES. THE BOOK ADVOCATES FOR PRIVACY RIGHTS AND SMARTER REGULATION.

7. *MATHEMATICS FOR SOCIAL SCIENTISTS: MODELING AND ANALYSIS*

THIS TEXTBOOK OFFERS MATHEMATICAL TOOLS AND MODELS TAILORED FOR SOCIAL SCIENCE APPLICATIONS. IT COVERS TOPICS LIKE GAME THEORY, NETWORKS, AND OPTIMIZATION TO ANALYZE SOCIAL PHENOMENA. THE BOOK IS DESIGNED TO HELP READERS

8. *How Not to Be Wrong: The Power of Mathematical Thinking*

JORDAN ELLENBERG'S BOOK DEMONSTRATES HOW MATHEMATICAL THINKING CAN ILLUMINATE EVERYDAY LIFE AND SOCIETAL PROBLEMS. IT SHOWS THAT MATH IS NOT JUST ABSTRACT BUT A PRACTICAL TOOL TO MAKE BETTER DECISIONS AND AVOID ERRORS. THE BOOK USES HUMOR AND RELATABLE EXAMPLES TO ENGAGE A BROAD AUDIENCE.

9. *The Signal and the Noise: Why So Many Predictions Fail—But Some Don't*

NATE SILVER EXPLORES THE ART AND SCIENCE OF PREDICTION, FOCUSING ON DISTINGUISHING MEANINGFUL SIGNALS FROM BACKGROUND NOISE. THE BOOK DISCUSSES THE ROLE OF STATISTICS AND PROBABILITY IN FIELDS LIKE POLITICS, ECONOMICS, AND WEATHER FORECASTING. IT EMPHASIZES THE SOCIETAL IMPORTANCE OF ACCURATE DATA INTERPRETATION.

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math in society 107: Bulletin of the American Mathematical Society American Mathematical Society, 1906

math in society 107: The History of Continuum Stewart Shapiro, Geoffrey Hellman, 2021 Mathematical and philosophical thought about continuity has changed considerably over the ages, from Aristotle's insistence that a continuum is a unified whole, to the dominant account today, that a continuum is composed of infinitely many points. This book explores the key ideas and debates concerning continuity over more than 2500 years.

math in society 107: Arrangements, Local Systems and Singularities Fouad El Zein, Alexander I. Suciu, Meral Tosun, Muhammed Uludag, Sergey Yuzvinsky, 2010-03-14 This volume comprises the Lecture Notes of the CIMPA/TUBITAK Summer School Arrangements, Local systems and Singularities held at Galatasaray University, Istanbul during June 2007. The volume is intended for a large audience in pure mathematics, including researchers and graduate students working in algebraic geometry, singularity theory, topology and related fields. The reader will find a variety of open problems involving arrangements, local systems and singularities proposed by the lecturers at the end of the school.

math in society 107: Hypergeometric Orthogonal Polynomials and Their q-Analogues Roelof Koekoek, Peter A. Lesky, René F. Swarttouw, 2010-03-18 The present book is about the Askey scheme and the q-Askey scheme, which are graphically displayed right before chapter 9 and chapter 14, respectively. The families of orthogonal polynomials in these two schemes generalize the classical orthogonal polynomials (Jacobi, Laguerre and Hermite polynomials) and they have properties similar to them. In fact, they have properties so similar that I am inclined (following Andrews & Askey [34]) to

call all families in the (q) -Askey scheme classical orthogonal polynomials, and to call the Jacobi, Laguerre and Hermite polynomials very classical orthogonal polynomials. These very classical orthogonal polynomials are good friends of mine since - most the beginning of my mathematical career. When I was a fresh PhD student at the Mathematical Centre (now CWI) in Amsterdam, Dick Askey spent a sabbatical there during the academic year 1969–1970. He lectured to us in a very stimulating way about hypergeometric functions and classical orthogonal polynomials. Even better, he gave us problems to solve which might be worth a PhD. He also pointed out to us that there was more than just Jacobi, Laguerre and Hermite polynomials, for instance Hahn polynomials, and that it was one of the merits of the Higher Transcendental Functions (Bateman project) that it included some newer stuff like the Hahn polynomials (see [198, §10. 23]).

math in society 107: Proceedings of the London Mathematical Society London Mathematical Society, 1928 Papers presented to J. E. Littlewood on his 80th birthday issued as 3d ser., v. 14 A, 1965.

math in society 107: *The Splendors and Miseries of Martingales* Laurent Mazliak, Glenn Shafer, 2022-10-17 Over the past eighty years, martingales have become central in the mathematics of randomness. They appear in the general theory of stochastic processes, in the algorithmic theory of randomness, and in some branches of mathematical statistics. Yet little has been written about the history of this evolution. This book explores some of the territory that the history of the concept of martingales has transformed. The historian of martingales faces an immense task. We can find traces of martingale thinking at the very beginning of probability theory, because this theory was related to gambling, and the evolution of a gambler's holdings as a result of following a particular strategy can always be understood as a martingale. More recently, in the second half of the twentieth century, martingales became important in the theory of stochastic processes at the very same time that stochastic processes were becoming increasingly important in probability, statistics and more generally in various applied situations. Moreover, a history of martingales, like a history of any other branch of mathematics, must go far beyond an account of mathematical ideas and techniques. It must explore the context in which the evolution of ideas took place: the broader intellectual milieu of the actors, the networks that already existed or were created by the research, even the social and political conditions that favored or hampered the circulation and adoption of certain ideas. This book presents a stroll through this history, in part a guided tour, in part a random walk. First, historical studies on the period from 1920 to 1950 are presented, when martingales emerged as a distinct mathematical concept. Then insights on the period from 1950 into the 1980s are offered, when the concept showed its value in stochastic processes, mathematical statistics, algorithmic randomness and various applications.

math in society 107: *Harmonic Analysis, Partial Differential Equations, Complex Analysis, Banach Spaces, and Operator Theory (Volume 1)* María Cristina Pereyra, Stefania Marcantognini, Alexander M. Stokolos, Wilfredo Urbina, 2016-09-15 Covering a range of subjects from operator theory and classical harmonic analysis to Banach space theory, this book contains survey and expository articles by leading experts in their corresponding fields, and features fully-refereed, high-quality papers exploring new results and trends in spectral theory, mathematical physics, geometric function theory, and partial differential equations. Graduate students and researchers in analysis will find inspiration in the articles collected in this volume, which emphasize the remarkable connections between harmonic analysis and operator theory. Another shared research interest of the contributors of this volume lies in the area of applied harmonic analysis, where a new notion called chromatic derivatives has recently been introduced in communication engineering. The material for this volume is based on the 13th New Mexico Analysis Seminar held at the University of New Mexico, April 3-4, 2014 and on several special sections of the Western Spring Sectional Meeting at the University of New Mexico, April 4-6, 2014. During the event, participants honored the memory of Cora Sadosky—a great mathematician who recently passed away and who made significant contributions to the field of harmonic analysis. Cora was an exceptional mathematician and human being. She was a world expert in harmonic analysis and operator theory, publishing over fifty-five

research papers and authoring a major textbook in the field. Participants of the conference include new and senior researchers, recent doctorates as well as leading experts in the area.

math in society 107: Moufang Sets and Structurable Division Algebras Lien Boelaert, Tom De Medts, Anastasia Stavrova, 2019-06-10 A Moufang set is essentially a doubly transitive permutation group such that each point stabilizer contains a normal subgroup which is regular on the remaining vertices; these regular normal subgroups are called the root groups, and they are assumed to be conjugate and to generate the whole group. It has been known for some time that every Jordan division algebra gives rise to a Moufang set with abelian root groups. The authors extend this result by showing that every structurable division algebra gives rise to a Moufang set, and conversely, they show that every Moufang set arising from a simple linear algebraic group of relative rank one over an arbitrary field k of characteristic different from 2 and 3 arises from a structurable division algebra. The authors also obtain explicit formulas for the root groups, the τ -map and the Hua maps of these Moufang sets. This is particularly useful for the Moufang sets arising from exceptional linear algebraic groups.

math in society 107: **General Technical Report NC.** , 1981

math in society 107: **Knots '96: Proceedings Of The Fifth International Research Institute Of Mathematical Society Of Japan** S Suzuki, 1997-04-19 This is the proceedings of an international conference on knot theory held in July 1996 at Waseda University Conference Center. It was organised by the International Research Institute of Mathematical Society of Japan. The conference was attended by nearly 180 mathematicians from Japan and 14 other countries. Most of them were specialists in knot theory. The volume contains 43 papers, which deal with significant current research in knot theory, low-dimensional topology and related topics. The volume includes papers by the following invited speakers: G Burde, R Fenn, L H Kauffman, J Levine, J M Montesinos(-A), H R Morton, K Murasugi, T Soma, and D W Sumners.

math in society 107: *Transactions of the American Mathematical Society* American Mathematical Society, 1908 Monthly journal devoted entirely to research in pure and applied mathematics, and, in general, includes longer papers than those in the Proceedings of the American Mathematical Society.

math in society 107: *Modern Trends in Algebra and Representation Theory* David Jordan, Nadia Mazza, Sibylle Schroll, 2023-08-17 Expanding upon the material delivered during the LMS Autumn Algebra School 2020, this volume reflects the fruitful connections between different aspects of representation theory. Each survey article addresses a specific subject from a modern angle, beginning with an exploration of the representation theory of associative algebras, followed by the coverage of important developments in Lie theory in the past two decades, before the final sections introduce the reader to three strikingly different aspects of group theory. Written at a level suitable for graduate students and researchers in related fields, this book provides pure mathematicians with a springboard into the vast and growing literature in each area.

math in society 107: *Delusions of Gender: How Our Minds, Society, and Neurosexism Create Difference* Cordelia Fine, 2011-08-08 Sex discrimination is supposedly a distant memory. Yet popular books, magazines and even scientific articles defend inequalities by citing immutable biological differences between the male and female brain. Why are there so few women in science and engineering, so few men in the laundry room? Well, they say, it's our brains.

math in society 107: *Number Theory and Modular Forms* Bruce C. Berndt, Ken Ono, 2013-11-11 Robert A. Rankin, one of the world's foremost authorities on modular forms and a founding editor of The Ramanujan Journal, died on January 27, 2001, at the age of 85. Rankin had broad interests and contributed fundamental papers in a wide variety of areas within number theory, geometry, analysis, and algebra. To commemorate Rankin's life and work, the editors have collected together 25 papers by several eminent mathematicians reflecting Rankin's extensive range of interests within number theory. Many of these papers reflect Rankin's primary focus in modular forms. It is the editors' fervent hope that mathematicians will be stimulated by these papers and gain a greater appreciation for Rankin's contributions to mathematics. This volume would be an

inspiration to students and researchers in the areas of number theory and modular forms.

math in society 107: The Publications of the Durham and Northumberland Parish Register Society , 1907

math in society 107: Search Games and Other Applications of Game Theory Andrey Garnaev, 2012-12-06 This book is on applications of game theory. The title of this book is not Game Theory and its Applications because it does not construct a general theory for considered games. The book contains a lot of examples of application of game theory together with the background of those games considered and a list of unsolved problems. Also we consider only the game where the optimal strategies of the players are found in closed form. This book is an attempt to carry on the approach developed in nice books Search Games by Gal and Geometric Games and their Applications by Ruckle. The first chapter of this book supplies the required definitions and theorems from game theory. The second chapter deals with discrete search games where both players act simultaneously: the games of protection of a channel from infiltration of a submarine, the submarine versus helicopter game, the matrix search games and others. The third chapter considers the game where the players allocate their continuous efforts. In these games players face up an alternative either not to come into contest if the cost of efforts seems too high, or come into it. In the last case the player have to decide how much resources they can afford to spend. The allocation models of search, antiballistic protection and marketing are investigated.

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