MATHEMATICAL TIMETABLE

Notices for Timetable are due by 4:00 pm on Thursday

MONDAY, AUGUST 29

TUESDAY, AUGUST 30

Classical Analysis 241 AH 1:00 pm
Mr. Ittai Kan, A chaotic function possessing a scrambled set with positive Lebesgue measure.

Commutative Algebra 247 AH 3:00 pm
Organizational meeting.

Logic 245 AH 3:00 pm
The Logic Seminar will meet at either 1 or 3 on Tuesdays, after this organizational session. Leave a note in Henson's mailbox if you have a preference or conflict and cannot come today.

Max Newman Topology 243 AH 11:00 am
Organizational meeting.

Number Theory 247 AH 1:00 pm
Professor Bruce Berndt, Introduction to q-series, I.

Probability & Statistics 241 AH 11:00 am
Statistics Division meeting.

WEDNESDAY, AUGUST 31

Combinatorial Algorithms 237 DCL 4:00 pm
Professor Kurt Melhorn, University of Saarlandes; New algorithms for shortest paths and transitive closure.

THURSDAY, SEPTEMBER 1

Mathematics Colloquium 314 AH 4:00 pm
Professor Henry Helson, UC-Berkeley; Cocycles on Flows.

Coffee & Tea 321 AH 3:15 pm

Commutative Algebra 247 AH 3:00 pm
Professor Le Dung Trang, Singularities for algebraists.

Number Theory 247 AH 1:00 pm
Professor Shisun Ding, Beijing University; An arithmetic characterization of Galois extension.

FRIDAY, SEPTEMBER 2

Decision & Information Science Call 3-4241 10-11:30 am
Professor Charles Blair, Business Administration; Linear programs with flippant constraints (work with M. Haimovich).
MONDAY, SEPTEMBER 5 - All campus holiday - offices closed.

TUESDAY, SEPTEMBER 6

Algebra and Algebraic Number Theory 245 AH 2:00 pm
Organizational meeting.

Classical Analysis 241 AH 1:00 pm
No meeting this week.

Commutative Algebra 247 AH 3:00 pm
Professor Le Dung Trang, Singularities for algebraists, II

Differential Geometry 241 AH 3:00 pm
Organizational meeting.

Functional Analysis 243 AH 3:00 pm
Organizational meeting.

Geometric Patnouri 241 AH 2:00 pm
Organizational meeting.

Logic 245 AH 3:00 pm
Professor Ward Henson, First order theories and models that are related to the regular languages (results due to Jan Mycielski and others).

Logic Lunch 11:45 am
Faculty and students with interest in logic will have lunch regularly at this time. Meet at 11:45 in the mailroom and go to the Illini Union Cafeteria. (If you cannot be ready at 11:45, go directly to the cafeteria.)

Max Newman Topology 243 AH 11:00 am
No meeting this week.

Number Theory 247 AH 1:00 pm
Professor Bruce Berndt, Introduction to q-series, II

Probability & Statistics 241 AH 11:00 am
Professor Dennis Jennings, Correlation in directional data.

WEDNESDAY, SEPTEMBER 7

Combinatorial Algorithms 237 DCL 4:00 pm
To be announced.
THURSDAY, SEPTEMBER 8

Mathematics Colloquium 314 AH 4:00 pm
Professor Le Dung Trang, University of Paris, VII; The geometry of characteristic varieties.

Coffee & Tea 321 AH 3:15 pm

ABSTRACT: We first show how classical differential systems can be studied algebraically on a complex analytic manifold. Then we define what is the characteristic variety of a linear differential system. In the special case such a system is "overdetermined" (holonomic) there are strong relations with geometry and the classical theory of vanishing cycles. We shall give the simplest example which relates the geometry of isolated singularity of hypersurfaces and the computations of vanishing cycles by J. Milnor.

Commutative Algebra 247 AH 3:00 pm
Professor Le Dung Trang, Singularities for algebraists, III

Mordell Conjecture (Faltings) 245 AH 2:00 pm
Organizational meeting.

Number Theory 247 AH 1:00 pm
Professor Bruce Berndt, Introduction to q-series, III

FRIDAY, SEPTEMBER 9

Decision & Information Science Call 3-4241 10-11:30 am
No meeting this week.
MONDAY, SEPTEMBER 12

CSL Seminar 198 CSL 2:00 pm
Professor Robert McEliece, EE Dept.-CalTech; Error correcting codes and computer memories

Mathematical Economics 143 AH 3:00 pm
No meeting this week.

TUESDAY, SEPTEMBER 13

Algebra 245 AH 2:00 pm
Professor Dan Grayson, Reduction theory for orthogonal groups.

Classical Analysis 241 AH 1:00 pm
Professor Robert Kaufman, Quasiconformal mappings and exceptional sets.

Commutative Algebra 247 AH 3:00 pm
Professor Le Dung Trang, Singularities for algebraists, IV

Differential Geometry 241 AH 3:00 pm
No meeting this week.

Geometric Potpourri 241 AH 2:00 pm
Mr. Joseph McCanna, A problem about collinear lattice points

Logic 245 AH 3:00 pm
Professor Ward Henson, Characterization of Banach spaces which are separably categorical

Logic Lunch 11:45 am

Max Newman Topology 243 AH 11:00 am
Professor John Ratcliffe, Heegaard genus of 3-manifolds

Number Theory 247 AH 1:00 pm
Professor Bruce Berndt, Introduction to q-series (the Rogers-Ramanujan identities)

Number Theory-Special 245 AH 10:30 am
Professor Philip Kutzko, University of Iowa; The local Langlands' conjecture and non-abelian class field theory: A survey.
ABSTRACT: Professor Kutzko's first lecture is of an expository nature and will be accessible to everyone who is interested in number theory. Beginning with an outline of local class field theory, Prof. Kutzko will describe his own proof in case n=2 of Langlands' conjectural correspondence between n-dimensional representations of GL(n) over the p-adics. On Wednesday he will deal with the case n=p.

Probability & Statistics 241 AH 11:00 am
Professor Robert Bohrer, Operating characteristics of James-Stein-Efron-Morris estimators
Mathematical Timetable

WEDNESDAY, SEPTEMBER 14

Combinatorial Algorithms 237 DCL 4:00 pm
Mr. Prasoon Tiwari, An efficient parallel algorithm for shifting the root of a depth first spanning tree.

Number Theory-Special 231 Nat. Hist. Bldg. 11:00 am
Professor P. Kutzko, University of Iowa; The local Langlands conjecture and non-abelian class field theory: GL(2)

THURSDAY, SEPTEMBER 8

Mathematics Colloquium 314 AH 4:00 pm
Professor Werner Balser, Universitat Ulm, visiting Univ. of Wisconsin-Milwaukee; Connection problems for differential equations in the complex domain.

Functional Analysis 321 AH 3:15 pm
Professor R. Balser, Universitat Ulm, visiting Univ. of Wisconsin-Milwaukee; in the complex domain.

ABSTRACT: Equations of the form (1) zx' = (zA_0 + A_1)x are related by a Laplace transform to the equation (2) (pI - A_0)y' = -(I + A_1)y. It will be explained how the central and lateral connection problem of (1) can be expressed in terms of constants arising from (2), and in which sense these constants are computable.

Commutative Algebra 247 AH 3:00 pm
Professor Le Dung Trang, Singularities for algebraists, V

Functional Analysis 243 AH 1:00 pm
Professor Robert Kaufman, On the adjoine of a closed operator.

Mordell Conjecture (Faltings) 245 AH 2:00 pm
Professor Dan Grayson, On Faltings, I

Number Theory 247 AH 1:00 pm
Professor Paul Bateman, Some remarks on the recent proofs of the prime number theorem by Newman and Korevaar.

Number Theory-Special 245 AH 10:30 am
Professor P. Krutzko, The local Langlands conjecture and non-abelian class field theory: GL(p)

Representation Theory 245 AH 2:00 pm
Professor L. McCulloh, D'(ZG) and the Artin cokernel, I

FRIDAY, SEPTEMBER 16

Decision & Information Science 370 Com West 2:00 am
Professor Romesh Saigal, Northwestern University; A homotopy for solving large sparse and structured fixed point problems.
MATHMATICAL TIMETABLE

Mathematical Economics
No meeting this week.

TUESDAY, SEPTEMBER 20

Algebra
Professor Dan Grayson, Reduction theory for orthogonal groups, II

Commutative Algebra
Professor M. Hazewinkel (Amsterdam); Operations on the K-theory of endomorphisms.

Differential Equations & Applied Analysis
Professor Robert Muncaster, Saint-Venant's Problem, I

Differential Geometry
Professor Ph. Tondeur, Signature of 4-manifolds, I

Geometric Potpourri
Mr. Bob Currier, Convexity under recession in hyperbolic space.

Logic
Professor Ward Henson, Characterization of Banach spaces which are separably categorical, II

Max Newman Topology
Professor John Ratcliffe, Heegaard genus of 3-manifolds, II

Number Theory
Professor Paul Bateman, Some remarks on the recent proofs of the prime number theorem by Newman and Korevaar, II

Probability & Statistics
Professor Stephen Portnoy, Use of regression fractiles to estimate the error distribution

WEDNESDAY, SEPTEMBER 21

Combinatorial Algorithms
Professor Franco Preparata, VLSI Area-time multiplier with minimum computation time.
THURSDAY, SEPTEMBER 22

Mathematics Colloquium 314 AH 4:00 pm
Professor Peter A. Loeb, Measure spaces in nonstandard models underlying standard stochastic processes.

Coffee & Tea 321 AH 3:15 pm
ABSTRACT: In working with stochastic processes, one often has in mind a formally finite process with infinitesimal increments or time changes. For example, the Poisson process can be thought of as a random distribution of an infinite number of unit masses into an infinite number of intervals of infinitesimal length. Brownian motion can be thought of as a random walk with infinitesimal steps. Such a cognitive experiment can be realized in a nonstandard model of the real numbers in the sense of Abraham Robinson. I give a basic introduction to nonstandard analysis and then show how a nonstandard cognitive experiment can be transformed into a standard probability space (still based on the nonstandard point set) that can be used as a probability space for the standard process. The measure theory starts from first principles with a functional approach to the integral.

Commutative Algebra 247 AH 3:00 pm
Professor M. Hazewinkel (Amsterdam) The ubiquity of the Hopf algebra $H^*(BU) = \bigoplus_{n \geq 0} R(S^n) = \exp(RZ) = R^{rat}(GL_\infty) = R(W) = B(W) = U(\Lambda)$.

Functional Analysis 243 AH 1:00 pm
Professor H. P. Lotz, Strongly continuous semi-groups on $L^\infty$ and $H^\infty(D)$

Mordell Conjecture (Faltings) 245 AH 2:00 pm
No meeting this week.

Number Theory 247 AH 1:00 pm
Professor John Steinig, Rules of signs.

Representation Theory 245 AH 2:00 pm
Professor L. McCulloh, $D^+(ZG)$ and the Artin cokernel, II

FRIDAY, SEPTEMBER 23

Decision & Information Science 370 Com West 2:00 am
No meeting this week.
<table>
<thead>
<tr>
<th>Course</th>
<th>Location</th>
<th>Time</th>
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<tbody>
<tr>
<td>Mathematical Economics</td>
<td>143 AH</td>
<td>3:00 pm</td>
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<tr>
<td>Professor Nikolas Papageorgiou, Results on optimal economic growth.</td>
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<td>TUESDAY, SEPTEMBER 27</td>
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<tr>
<td>Mathematics Colloquium</td>
<td>314 AH</td>
<td>4:00 pm</td>
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<tr>
<td>Professor J.S.R. Chisholm, University of Kent (England); Generalisations of Pade approximants</td>
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<tr>
<td>Coffee &amp; Tea</td>
<td>321 AH</td>
<td>3:15 pm</td>
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<td>ABSTRACT: In 1960, Gammer and Baker began to form Pade approximants from power series arising in various branches of theoretical physics. Since then, a wide variety of generalisations of these approximants have been defined and studied. The choice of approximant now depends upon the information content and form of a series expansion, and on the analytic properties of the function to be approximated.</td>
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<tr>
<td>Algebra</td>
<td>245 AH</td>
<td>2:00 pm</td>
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<tr>
<td>Professor Dan Grayson, Reduction theory for orthogonal groups, III</td>
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<tr>
<td>Classical Analysis</td>
<td>241 AH</td>
<td>1:00 pm</td>
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<tr>
<td>Dr. John Langley, A theorem of Haezman on the values of differential polynomials.</td>
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<tr>
<td>Commutative Algebra</td>
<td>247 AH</td>
<td>3:00 pm</td>
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<tr>
<td>Professor Marie-Paule Malliavin (Univ. de Paris VI); Almost commutative rings and characteristic varieties of modules.</td>
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<tr>
<td>Differential Equations &amp; Applied Analysis</td>
<td>243 AH</td>
<td>2:00 pm</td>
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<tr>
<td>Professor Robert Muncaster, Saint-Venant's Problem, II</td>
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<tr>
<td>Differential Geometry</td>
<td>241 AH</td>
<td>3:00 pm</td>
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<tr>
<td>Professor Ph. Tondeur, Signature of 4-manifolds, II</td>
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<tr>
<td>Fermat's Last Theorem</td>
<td>241 AH</td>
<td>9-10:30 am</td>
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<tr>
<td>Professor P. Ribenboim. Please note time change for lectures.</td>
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<tr>
<td>Geometric Potpourri</td>
<td>241 AH</td>
<td>2:00 pm</td>
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<tr>
<td>Professor Doug West, The jewel thieves' necklace partitioning problem.</td>
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<tr>
<td>Logic</td>
<td>245 AH</td>
<td>3:00 pm</td>
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<td>No meeting this week.</td>
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<tr>
<td>Max Newman Topology</td>
<td>243 AH</td>
<td>11:00 am</td>
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<tr>
<td>Professor Wolfgang Haken, Recognizing S^1, I</td>
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<tr>
<td>Mordell Conjecture</td>
<td>243 AH</td>
<td>4:00 pm</td>
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<tr>
<td>Professor Dan Grayson, Climbing the heights, I</td>
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TUESDAY—CONTINUED

Number Theory 247 AH 1:00 pm
Professor Paul Bateman, Some remarks on the recent proofs of the prime number theorem by Newman and Korevaar, III

Probability & Statistics 241 AH 11:00 am
Professor Bruce Hajek, EE Dept.; Mean stochastic comparison and Lyapunov stability of diffusion.

WEDNESDAY, SEPTEMBER 28

Combinatorial Algorithms 237 DCL 4:00 pm
Mr. Majid Sarrafzadeh, An efficient routing of multiterminal nets.

THURSDAY, SEPTEMBER 29

Commutative Algebra 247 AH 3:00 pm
Professor Marie-Paule Malliavin (Univ. de Paris VI) Weil representation of $\mathfrak{s}_0(n+2)$ and Krull dimension of $\mathfrak{U}(\mathfrak{sl}(3))$.

Functional Analysis 243 AH 1:00 pm
Professor H. P. Lotz, Strongly continuous semi-groups on $L^\infty$ and $H^\infty(D)$, II

Number Theory 247 AH 1:00 pm
Professor Ken Stolarsky, Theta functions and zeros of rational functions approximating the cosecant.

Representation Theory 245 AH 2:00 pm
Professor L. McCulloh, $D^+(\mathbb{ZG})$ and the Artin cokernel, III

FRIDAY, SEPTEMBER 30

Decision & Information Science 370 Com West 2:00 am
Professor Zvi Ritz (Bus. Adm.) Game Theory, Title to be announced.
MATHEMATICAL TIMETABLE

October 3-7, 1983

MONDAY, OCTOBER 3

Mathematical Economics 143 AH
To be announced.

TUESDAY, OCTOBER 4

Algebra 245 AH
Professor G. Almkvist, The integrity of ghosts.

Classical Analysis 241 AH
Dr. James Langley, Values of differential polynomials.

Commutative Algebra 247 AH
No meeting today.

Differential Geometry 241 AH
Professor Richard Bishop, Riemannian manifolds with boundary I.

Geometric Potpourri 241 AH
Professor Doug West, The jewel thieves' necklace partitioning problem, II.

Logic 245 AH
Professor Carl Jockusch, The Goodstein sentence - a simple "number-theoretic" undecidable sentence.

Max Newman Topology 243 AH
Professor Wolfgang Haken, Recognizing $S^3$, II.

Mordell Conjecture 243 AH
Professor Dan Grayson, Climbing the heights, II.

Number Theory 247 AH
Professor Paulo Ribenboim, Sophie Germain's method for a wide class of diophantine equations, I.

Probability & Statistics 241 AH
Professor Harvey Choldin, Department of Sociology; Some political aspects of the 1980 census.

WEDNESDAY, OCTOBER 5

Combinatorial Algorithms 237 DCL
No meeting this week.
**MATHEMATICAL TIMETABLE**

**October 10-14, 1983**

**MONDAY, OCTOBER 10**

**Mathematical Economics**

143 AH  
3:00 pm  
Dr. Nikolaos Papageorgiou, Duality methods in dynamic economic models.

**TUESDAY, OCTOBER 11**

**Algebra**

245 AH  
2:00 pm  
Professor G. Almkvist, K-theory of endomorphisms of graded modules.

**Commutative Algebra**

247 AH  
3:00 pm  
See Thursday.

**Differential Geometry**

241 AH  
3:00 pm  
Professor Richard Bishop, Riemannian manifolds with boundary, II

**Geometric Potpourri**

241 AH  
2:00 pm  
Professor Richard Bishop, A geometric solution to: $a_n = |a_{n-1} - a_{n-2}|$ is periodic.

**Logic**

245 AH  
3:00 pm  
Professor Carl Jockusch, Recursively enumerable sets and partition theorems.

**Max Newman Topology**

243 AH  
11:00 am  
Professor Wolfgang Haken, Recognizing $S^3$, III

**Mordell Conjecture**

243 AH  
4:00 pm  
Professor Dan Grayson, Climbing the heights, III

**Number Theory**

247 AH  
1:00 pm  
Mr. Michael Filaseta, Short interval results for $k$-free values of irreducible polynomials, I

**Probability & Statistics**

241 AH  
11:00 am  
Professor Ditlev Monrad, On the linearity of the Ito-integral.

**WEDNESDAY, OCTOBER 12**

**Combinatorial Algorithms**

237 DCL  
4:00 pm  
Mr. Prakash Ramanan, New bounds for online bin packing.
THURSDAY, OCTOBER 13

Mathematics Colloquium 314 AH 4:00 pm
Professor L. Avramov, Sofia visiting UIUC; Graded Lie algebras: a(nother)
switchboard between algebra and topology
Coffee & Tea 321 AH 3:15 pm
ABSTRACT: Some problems in homotopy theory and in commutative algebra have been
leading to strikingly similar results. A systematic way to exploit this
observation is provided by graded Lie algebras. The talk will explain the problems
in down-to-earth terms (e.g., in terms of number of solutions of systems of linear
equations whose coefficients are (germs of) holomorphic functions on an analytic
space). It will then proceed to recent results, in which an algebraic (or
topological) insight has led to a topological (or algebraic) result.

Commutative Algebra 247 AH 3:00 pm
See colloquium.

Differential Equations & Applied Analysis 243 AH 3:00 pm
Mr. Jinn-Wen Wu, Saint-Venant's Problem, IV

Functional Analysis 243 AH 2:00 pm
Professor N. T. Peck, The Banach envelope of weak \( L_1 \) (NOTE NEW TIME)

Number Theory 247 AH 1:00 pm
Professor Paulo Ribenboim, Sophie Germain's method for a wide class of diophantine
equations, III

Representation Theory 245 AH 2:00 pm
Professor L. McCulloh, \( D'(ZG) \) and the Artin cokernel, V

FRIDAY, OCTOBER 14

Decision & Information Science 370 Com West 2:00 am
No meeting this week.
MATHEMATICAL TIMETABLE

MONDAY, OCTOBER 17

**Commutative Algebra** 347 AH 4:00 pm
Professor M. Schlessinger, University of North Carolina; The space of twisted cubics.

**Mathematical Economics** 143 AH 3:00 pm
Dr. Nikolaos Papageorgiou, Duality methods in dynamic economic models, II

TUESDAY, OCTOBER 18

**Algebra** 245 AH 2:00 pm
Professor G. Almkvist, K-theory of endomorphisms of graded modules, II

**Combinatorial Algorithms** 115 DCL 4:00 pm
Professor Marc Snir, Hebrew University of Jerusalem; On parallel searching.

**Commutative Algebra** 247 AH 3:00 pm
Professor D. Buchsbaum, Brandeis University; Resolutions.

**Differential Geometry** 241 AH 3:00 pm
Mrs. Nadine Menninga, Immersion of compact positively curved manifolds into manifolds with curvature bounded above.

**Geometric Potpourri** 241 AH 2:00 pm
No meeting this week.

**Logic** 245 AH 3:00 pm
Professor Carl Jockusch, Conway's proofs of the undecidability of the termination problem for some simply defined sequences.

**Max Newman Topology** 243 AH 11:00 am
Professor Wolfgang Haken, Recognizing $S^2$, IV

**Mordell Conjecture** 243 AH 4:00 pm
Professor Dan Grayson, Climbing the heights, IV

**Number Theory** 247 AH 1:00 pm
Mr. Michael Filaseta, Short interval results for k-free values of irreducible polynomials, II

**Probability & Statistics** 241 AH 11:00 am
Professor Steen Andersson, University of Copenhagen; On the role of group actions in multivariate statistical analysis.

WEDNESDAY, OCTOBER 19

**Combinatorial Algorithms** 237 DCL 4:00 pm
See Tuesday listing this week.

**Commutative Algebra** 347 AH 4:00 pm
Professor K. Akin, Purdue University; Resolutions.
THURSDAY, OCTOBER 20

Mathematics Colloquium  314 AH  4:00 pm
Professor Eric Bedford, Indiana University; Capacity and Plurisubharmonic Functions
Coffee & Tea  321 AH  3:15 pm

ABSTRACT: Plurisubharmonic functions play a role in the potential theory of analytic functions of several variables. A capacity for these functions can be developed using the complex Monge-Ampere equation. This is used to obtain some "fine" properties of plurisubharmonic functions, which in turn are used to generalize some results of S. Bernstein on analytic functions.

Commutative Algebra  247 AH  3:00 pm
Professor V. Lakshmidai, University of Michigan; Flag manifolds.

Differential Equations & Applied Analysis  243 AH  3:00 pm
Professor Robert Muncaster, Saint-Venant's Problem, V

Functional Analysis  243 AH  2:00 pm
Professor N. T. Peck, The Banach envelope of weak $L_1$,II

Number Theory  247 AH  1:00 pm
Dr. Alopf Hildebrand, On the Turan-Kubilius inequality.

Representation Theory  245 AH  2:00 pm
Professor Irving Reiner, $D^+(ZG)$ and the Artin cokernel, VI

FRIDAY, OCTOBER 21

Decision & Information Science  370 Com West  2:00 am
To be announced.
MONDAY, OCTOBER 24

Cairns Memorial Lecture-I
Professor Dennis Sullivan, Einstein Professor of Mathematics at Queen's University and CUNY Graduate Center; Dynamics in one variable - a rather complete but rather complicated theory. (NOTE TIME CHANGE)
Coffee & Tea 321 AH 4:15 pm

Mathematical Economics
No meeting this week.

TUESDAY, OCTOBER 25

Cairns Memorial Lecture-II
Professor Dennis Sullivan, Queen's University and CUNY Graduate Center; Dynamics in one variable - a rather complete but rather complicated theory.
Coffee & Tea 321 AH 3:15 pm

Algebra
Professor Irving Reiner, Locally free class groups of integral group rings, for cyclic groups of squarefree order.

Commutative Algebra
Professor Igor Dolgachev, University of Michigan; The mathematics of A. B. Coble (Summary: Professor A.B. Coble was one of this department's most eminent members. This lecture will discuss Coble's contributions to Algebraic Geometry.

Differential Geometry
Joint meeting with Geometric Potpourri at 2:00; See Below.

Geometric Potpourri
Mrs. Nadine Menninga, A continuation of her talk in the Differential Geometry seminar of last week, "Immersion of compact positively curved manifolds into manifolds with curvature bounded above."

Logic
Professor Ward Henson, New methods for obtaining lower bounds on the complexity of decidable theories, I.

Max Newman Topology
Professor Wolfgang Haken, Recognizing $S^3$, V.

Mordell Conjecture
Professor Dan Grayson, Climbing the heights, V.

Number Theory
Mr. Michael Filaseta, Short interval results for k-free values of irreducible polynomials, III.

Probability & Statistics
Professor John Hadden, Combining independent tests.
WEDNESDAY, OCTOBER 26

Combinatorial Algorithms 237 DCL
Professor Vijaya Ramachandran, EE & CSL; A linear time race detection algorithm for VLSI.

THURSDAY, OCTOBER 27

Cairns Memorial Lecture-III 314 AH
Professor Dennis Sullivan, Queen's University and CUNY Graduate Center; Dynamics in one variable - a rather complete but rather complicated theory.

Commutative Algebra 247 AH
No meeting today.

Differential Equations & Applied Analysis 243 AH
Professor Robert Muncaster, Saint-Venant's Problem, VI.

Functional Analysis 243 AH
Professor Nikolas Papageorgiou, Convex analysis and approximation theory.

Number Theory 247 AH
Professor H. Delange, Centre D'Orsay; Moments of additive functions.

Representation Theory 245 AH
Professor Irving Reiner, $D'(ZG)$ and the Artin cokernel, VII.

FRIDAY, OCTOBER 28

Decision & Information Science 370 Com West
No meeting this week.
MATHEMATICAL TIMETABLE

October 31–November 4, 1983

MONDAY, OCTOBER 31

Mathematical Economics
To be announced.

TUESDAY, NOVEMBER 1

Algebra
Professor Irving Reiner, Locally free class groups of integral group rings, for cyclic groups of squarefree order, II

Commutative Algebra
No meeting today.

Differential Geometry
Professor Richard Bishop, Riemannian manifolds with boundary, III

Geometric Potpourri
Mr. Albert Galick, Computer assisted graphics.

Logic
Professor Ward Henson, New methods for obtaining lower bounds on the complexity of decidable theories, II

Max Newman Topology
Professor Wolfgang Haken, Recognizing $S^3$, VI

Mordell Conjecture
Professor Amassa Fauntleroy, Curves to abelian varieties: Torelli's theorem, I

Number Theory
Professor H. Delange, Orsay; Moments of additive functions, II

Probability & Statistics
See Thursday listing.

WEDNESDAY, NOVEMBER 2

Combinatorial Algorithms
Professor Michael Loui, EE & CSL; The complexity of sorting on distributed systems

Decision & Information Science
Professor Elaine Bennett, SUNY at Buffalo; Coalition formation and payoff distribution in cooperative games.
THURSDAY, NOVEMBER 3

Mathematics Colloquium 314 AH 4:00 pm
Professor Christopher Hooley, F.R.S., visiting the Institute for Advanced Study; Recent advances in analytic number theory.

Coffee & Tea 321 AH 3:15 pm
ABSTRACT: His one hour plenary address from the Warsaw congress.

Commutative Algebra 247 AH 3:00 pm
Professor E. Graham Evans, Spherical filtrations.

Differential Equations & Applied Analysis 243 AH 3:00 pm
Professor Robert Muncaster, Saint-Venant's Problem, VII

Functional Analysis 243 AH 2:00 pm
Mr. Robert Megginson, Nearest-point properties of sets in normal spaces.

Number Theory 247 AH 1:00 pm
Professor H. Delange, Orsay; Application of Daboussi's theorem to the study of the distribution of additive functions.

Probability & Statistics—Joint with Purdue at Purdue 4:30 pm EST
Professor William Stout, A statistical test of unidimensionality of a parameter underlying Bernoulli trials with applications to psychometrics.

Representation Theory 245 AH 2:00 pm
Professor Christopher Hooley, F.R.S., visiting the Institute for Advanced Study, Princeton; On the Pellian equation and the class numbers of indefinite binary quadratic forms.

FRIDAY, NOVEMBER 5

Decision & Information Science 370 Com West 2:00 am
See Wednesday listing.
MONDAY, NOVEMBER 14

Analysis-Special Seminar
314 AH
4:00 pm
Professor Matts Essen, University of Uppsala; Rearrangements and optimization problems for certain linear second-order differential equations.

TUESDAY, NOVEMBER 15

Mathematics Colloquium
314 AH
4:00 pm
Professor S. Kakutani, Yale University; Ergodic theorems for nonexpansive maps in Hilbert space.

Coffee & Tea
321 AH
3:15 pm

Algebra
245 AH
2:00 pm
Professor Carlos Moreno, Theory of Automorphic forms for Chevalley groups over number fields, II

Classical Analysis
241 AH
1:00 pm
Professor Matts Essen, University of Uppsala; $H^p$-classes, harmonic measure and a problem of Burkholder.

Commutative Algebra
247 AH
3:00 pm
Professor David Eisenbud, Brandeis; To be announced.

Differential Geometry
241 AH
3:00 pm
No meeting today.

Geometric Potpourri
241 AH
2:00 pm
No meeting today.

Logic
245 AH
3:00 pm
No meeting today.

Mathematical Economics
243 AH
3:00 pm
No meeting today.

Mathematical Economics-Econ Dept
120 COM WEST
3:00 pm
Professor Pradeep Dubey, Yale University; An equivalence principle for perfectly competitive economics.

Max Newman Topology
243 AH
11:00 am
Professor Wolfgang Haken, Recognizing $S^3$, VIII

Mordell Conjecture
243 AH
4:00 pm
Professor Amassa Fauntleroy, Curves to abelian varieties: Torelli's theorem, III

Number Theory
247 AH
1:00 pm
Professor Kenneth Stolarsky, Computer assisted discoveries about least common multiples.

Probability & Statistics
241 AH
11:00 am
Professor Frank Knight, Strict-sense forms of Hida-Cramer representation, I
WEDNESDAY, NOVEMBER 16

**Combinatorial Algorithms**  
237 DCL  
4:00 pm  
Mr. Eli Gafni, Distributed traversal of strongly connected unidirectional graphs, or how to DFS a directed graph without backtracking.

THURSDAY, NOVEMBER 17

**Mathematics Colloquium**  
314 AH  
4:00 pm  
Professor Johan L. Dupont, SUNY at Buffalo and Aarhus University; Scissors congruence and homology of Lie groups.  
Coffee & Tea  
321 AH  
3:15 pm  
ABSTRACT: In euclidean, spherical or hyperbolic n-space, two polytopes are called "scissors congruent" if they can be cut into smaller pieces in such a way that each piece from one polytope is congruent to exactly one piece from the other. The generalized "Hilbert's 3rd problem" concerns finding invariants which determines scissors congruence classes of polytopes. It turns out that this is related to the calculation of the homology of classical Lie groups in the discrete topology. We study this relation in particular for the case of hyperbolic geometry and the implications for the structure of $H_3(\text{SL}(2,C),Z)$ and $H_2(\text{SU}(2),Z)$.

**Commutative Algebra**  
247 AH  
3:00 pm  
Professor Richard Stanley, M.I.T.; The stable invariant theory of $\text{SL}(n,C)$.

**Differential Equations & Applied Analysis**  
243 AH  
3:00 pm  
No meeting today.

**Functional Analysis**  
243 AH  
2:00 pm  
Mr. Robert Megginson, Nearest-point properties of sets in normal spaces, III

**Number Theory**  
247 AH  
1:00 pm  
Dr. Adolf Hildbrand, Estimates for moments of additive functions.

**Representation Theory**  
245 AH  
2:00 pm  
Professor Irving Reiner, $D(G)^+$ and the Artin cokernel (By. R. Oliver), IX

**Student Probability**  
245 AH  
11:00 am  
Mr. Atul Jain, Ito's formula for discontinuous semimartingales, I

FRIDAY, NOVEMBER 18

**Decision & Information Science**  
370 Com West  
2:00 am  
Mr. Jack Sim, White Manufacturing Corp.; Flexible manufacturing systems.
MATHEMATICAL TIMETABLE  

MONDAY, NOVEMBER 21

TUESDAY, NOVEMBER 22

**Algebra**  
245 AH  
2:00 pm  
Professor Carlos Moreno, Theory of Automorphic forms for Chevalley groups over number fields, III

**Commutative Algebra**  
247 AH  
3:00 pm  
No meeting today.

**Differential Geometry**  
241 AH  
3:00 pm  
Professor Pat Coulton, Eastern Illinois University; An integral formula for an $SO(n) \times SO(r)$ foliation, II

**Geometric Potpourri**  
241 AH  
2:00 pm  
No meeting today.

**Logic**  
245 AH  
3:00 pm  
No meeting today.

**Mathematical Economics**  
243 AH  
3:00 pm  
Professor Nick Papageorgiou, Duality techniques in optimal economic growth, II

**Newman Topology**  
243 AH  
11:00 am  
Professor Wolfgang Haken, Recognizing $\tilde{S}$, IX

**Mordell Conjecture**  
243 AH  
4:00 pm  
Professor Amassa Fauntleroy, Curves to abelian varieties: Torelli's theorem, IV

**Number Theory**  
247 AH  
1:00 pm  
Professor Adolf Hildebrand, Quantitative mean value estimates for multiplicative functions.

**Probability & Statistics**  
241 AH  
11:00 am  
Professor Frank Knight, Strict-sense forms of Hida-Cramer representation, II

WEDNESDAY, NOVEMBER 23

**Combinatorial Algorithms**  
237 DCL  
4:00 pm  
No meeting today.

THURSDAY, NOVEMBER 24 - Thanksgiving Holiday; offices closed

FRIDAY, NOVEMBER 25 - Thanksgiving Holiday; offices closed
### MATHEMATICAL TIMETABLE

**November 28 - December 2, 1983**

#### MONDAY, NOVEMBER 21

**Analysis-Special Seminar**
- **Time:** 147 AH, 4:00 pm
- **Speaker:** Professor Robin Hudson, University of Nottingham visiting Austin; Quantum Ito Calculus

#### TUESDAY, NOVEMBER 29

**Coble Memorial Lecture**
- **Time:** 314 AH, 4:00 pm
- **Speaker:** Professor Jean-Louis Verdier, Ecole Normale Superieure, Paris; Solitons, symmetries and geometry.

**Coffee & Tea**
- **Time:** 321 AH, 3:15 pm

**Algebra**
- **Time:** 245 AH, 2:00 pm
- **Speaker:** Professor Carlos Moreno, Theory of Automorphic forms for Chevalley groups over number fields, IV

**Commutative Algebra**
- **Time:** 247 AH, 3:00 pm
- **Speaker:** No meeting today.

**Differential Geometry**
- **Time:** 241 AH, 2:00 pm
- **Speaker:** Professor F. W. Kamber, The index theorem for foliations (following Connes-Skandalis-Moore-Schochet). NOTE TIME CHANGE

**Geometric Potpourri**
- **Time:** 241 AH, 2:00 pm
- **Speaker:** No meeting today.

**Logic**
- **Time:** 245 AH, 3:00 pm
- **Speaker:** Mr. Max Garzon, Cayley automata.

**Mathematical Economics**
- **Time:** 243 AH, 3:00 pm
- **Speaker:** Professor Nick Papageorgiou, Duality techniques in optimal economic growth, III

**Max Newman Topology**
- **Time:** 243 AH, 11:00 am
- **Speaker:** Professor Wolfgang Haken, Recognizing $S^3$, $X$

**Mordell Conjecture**
- **Time:** 243 AH, 1:00 pm
- **Speaker:** Professor Amassa Fauntleroy, Curves to abelian varieties: Torelli's theorem, IV. NOTE TIME CHANGE.

**Number Theory**
- **Time:** 247 AH, 1:00 pm
- **Speaker:** Professor Harold Diamond, The hunt for sieve parameters, I

**Probability & Statistics**
- **Time:** 241 AH, 11:00 am
- **Speaker:** Professor Stephen Portnoy, Central limit theorem in $\mathbb{R}^p$ when $p \to \infty$. 
### Wednesday, November 30

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
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<tbody>
<tr>
<td>Coble Memorial Lecture</td>
<td>314 AH</td>
<td>5:00 pm</td>
</tr>
<tr>
<td>Professor Jean-Louis Verdier, Ecole Normale Superieure, Paris; Solitons, symmetries and geometry.</td>
<td>314 AH</td>
<td>5:00 pm</td>
</tr>
<tr>
<td>Coffee &amp; Tea</td>
<td>321 AH</td>
<td>4:15 pm</td>
</tr>
<tr>
<td>Combinatorial Algorithms</td>
<td>237 DCL</td>
<td>4:00 pm</td>
</tr>
<tr>
<td>Ms. Debbie Borkovitz, Multiplicative magic squares.</td>
<td>314 AH</td>
<td>5:00 pm</td>
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</tbody>
</table>

### Thursday, December 1

<table>
<thead>
<tr>
<th>Event</th>
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<tbody>
<tr>
<td>Coble Memorial Lecture</td>
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</tr>
<tr>
<td>Commutative Algebra</td>
<td>247 AH</td>
<td>3:00 pm</td>
</tr>
<tr>
<td>No meeting today</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional Analysis</td>
<td>243 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Professor Nikolas Papageorgiou, Convex analysis and approximation theory.</td>
<td>243 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Number Theory</td>
<td>247 AH</td>
<td>1:00 pm</td>
</tr>
<tr>
<td>Professor Harold Diamond, The hunt for sieve parameters, II.</td>
<td>247 AH</td>
<td>1:00 pm</td>
</tr>
<tr>
<td>Representation Theory</td>
<td>245 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Professor Irving Reiner, D(ZG)(^+) and the Artin cokernel (By. R. Oliver), X</td>
<td>245 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Student Probability</td>
<td>245 AH</td>
<td>11:00 am</td>
</tr>
<tr>
<td>Mr. Atul Jain, Ito's formula for discontinuous semimartingales, II</td>
<td>245 AH</td>
<td>11:00 am</td>
</tr>
</tbody>
</table>

### Friday, December 2

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis-Special Seminar</td>
<td>345 AH</td>
<td>4:00 pm</td>
</tr>
<tr>
<td>Professor Guido Weiss, Washington University; More results on spaces generated by blocks.</td>
<td>345 AH</td>
<td>4:00 pm</td>
</tr>
<tr>
<td>Decision &amp; Information Science</td>
<td>370 Com West</td>
<td>2:00 am</td>
</tr>
<tr>
<td>To be announced. Call 3-4240 for information.</td>
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</tbody>
</table>
MONDAY, DECEMBER 5

Special Seminar 314 AH  5:00 pm
Professor Bruce Reznick, The 1983 Putnam Examination

TUESDAY, DECEMBER 6

Algebra 245 AH  2:00 pm
Professor Carlos Moreno, Theory of Automorphic forms for Chevalley groups over number fields, V

Classical Analysis 241 AH  1:00 pm
Professor Gary Gunderson, University of New Orleans; Meromorphic functions that share four values.

Commutative Algebra 247 AH  3:00 pm
Professor Paulo Ribenboim, Applications of model theory to the Galois theory of algebraic functions of several complex variables.

Differential Geometry 241 AH  3:00 pm
Professor David Ellis, Washington University, St. Louis; Foliations with non-orientable leaves.

Geometric Potpourri 241 AH  2:00 pm
Professor Bob Kaufman, Through a graph darkly.

Logic 245 AH  3:00 pm
Mr. Max Garzon, Cayley automata, II

Mathematical Economics 243 AH  3:00 pm
To be announced.

Max Newman Topology 243 AH  11:00 am
Professor Wolfgang Haken, Recognizing $S^3$, XI

Mordell Conjecture 243 AH  4:00 pm
Professor Amassa Fauntleroy, Curves to abelian varieties: Torelli's theorem, V.

Number Theory 247 AH  1:00 pm
Professor Bruce Berndt, Some problems of Ramanujan on sums of divisors, I

Pi Mu Epsilon Lecture 314 AH  4:00 pm
Professor Paul Handler, Dept. of Physics; Correlations in Climatology.

Coffee & Tea 321 AH  3:15 pm

Probability & Statistics 241 AH  11:00 am
See Thursday.

Student Probability 241 AH  11:00 am
Mr. Tim Stemple, On the local growth of Levy-Khinchin processes.
WE T N E S D A Y , D E C E M B E R 7

Combinatorial Algorithms
237 DCL
4:00 pm
Professor S. Zaks, MIT and Technion, Israel Institute of Technology; Tight lower and upper bounds for distributed algorithms for a complete network of processors.

TH U R S D AY , D E C E M B E R 8

Ferber Lecture and MILLERCOM% 84
314 AH
4:00 pm

Coffee & Tea
321 AH
3:15 pm

Mathematics Colloquium
245 AH
4:00 pm
Professor Christophe Reutenauer, CRNS-Paris; The semisimplicity of algebras associated with biprefix codes.

Coffee & Tea
321 AH
3:15 pm

Commutative Algebra
247 AH
3:00 pm
To be announced.

Functional Analysis
243 AH
2:00 pm
Professor Nikolas Papageorgiou, Convex analysis and approximation theory, II

Number Theory
247 AH
1:00 pm
Professor Bruce Berndt, Some problems of Ramanujan on sums of divisors, II

Probability & Statistics
241 AH
11:00 am
Professor C. R. Rao, University of Pittsburgh and Indian Statistical Institute, Convexity properties of entropy functions and analysis of diversity.

Representation Theory
245 AH
2:00 pm
Professor Irving Reiner, $D(ZG)^+$ and the Artin cokernel (By. R. Oliver), XI

Student Probability
245 AH
11:00 am
See Tuesday.

FR I D AY , D E C E M B E R 9

Decision & Information Science
370 Com West
2:00 am
To be announced. Call 3-4240 for information.
## Combinatorial Algorithms

- **Course**: 237 DCL
- **Time**: 4:00 pm
- **Professor**: Dr. Kenneth J. Supowit, Hewlett-Packard Lab
- **Location**: 273 Altgeld Hall, 1409 West Green Street, Urbana, Illinois 61801
- **Description**: Some combinatorial problems arising in applied VLSI layout. (See also Wednesday listing.)

## Commutative Algebra

- **Course**: 247 AH
- **Time**: 3:00 pm
- **Professor**: Professor Sadettin Erdem, Michigan Technological University
- **Location**: 247 AH
- **Description**: Some classification theorems of harmonic maps from Riemann surfaces.

## Differential Geometry

- **Course**: 241 AH
- **Time**: 3:00 pm
- **Professor**: Professor Sadettin Erdem, Michigan Technological University
- **Location**: 241 AH
- **Description**: Some classification theorems of harmonic maps from Riemann surfaces.

## Logic

- **Course**: 245 AH
- **Time**: 1:00 pm
- **Professor**: Mr. Armin Haken
- **Location**: 245 AH
- **Description**: The intractability of resolution. (Please let Carl Jockusch know if this time is inconvenient for future meetings.)

## Max Newman Topology

- **Course**: 243 AH
- **Time**: 11:00 am
- **Professor**: Professor Wolfgang Haken
- **Location**: 243 AH
- **Description**: Recognizing $S^3$, XII

## Mordell's Conjecture

- **Course**: 243 AH
- **Time**: 4:00 pm
- **Professor**: To be announced.

## Number Theory

- **Course**: 247 AH
- **Time**: 1:00 pm
- **Professor**: Professor Harold Diamond
- **Location**: 247 AH
- **Description**: New elementary proof of the prime number theorem, I

## Probability & Statistics

- **Course**: 241 AH
- **Time**: 11:00 am
- **Professor**: Mr. Jim Crabtree
- **Location**: 241 AH
- **Description**: First exit times from moving boundaries.

## Wednesday, January 16

- **Combinatorial Algorithms**: 237 DCL
- **Time**: 3:10 pm (SHARP)
- **Professor**: Professor David Shmoys, UC-Berkeley
- **Location**: 273 Altgeld Hall, 1409 West Green Street, Urbana, Illinois 61801
- **Description**: Powers of graphs: A powerful approximation technique for bottleneck problems. (See also Monday listing.)

## Thursday, January 19

- **Commutative Algebra**: 247 AH
- **Time**: 3:00 pm
- **Professor**: Professor Robert Fossum
- **Location**: 247 AH
- **Description**: Isolated curve and surface singularities (The McKay Correspondence, I)

## Friday, January 20

- **Number Theory**: 247 AH
- **Time**: 1:00 pm
- **Professor**: Professor Harold Diamond
- **Location**: 247 AH
- **Description**: New elementary proof of the prime number theorem, II
# Mathematical Timetable

**January 23-27, 1984**

**Monday, January 23**

**Apple Seminar**

141 AH
4:00 pm

Professor G. Francis; Introducing the UIMath APPLE Lab; Organization of tutorial sequences for staff; and demonstration of Jim Bailey's 'gradebook' program for the APPLES.

**Commutative Algebra**

247 AH
3:00 pm

No meeting today.

**Differential Geometry**

241 AH
3:00 pm

No meeting this week.

**Functorial Semantics**

250 DCL
1:00 pm

Professor J.W. Gray; The connections between algebraic and denotational semantics.

**Geometric Potpourri**

243 AH
2:00 pm

Organizational meeting.

**Logic**

245 AH
1:00 pm

Mr. Armin Haken, Intractability of Resolution, II

**Max Newman Topology**

243 AH
11:00 am

Professor Wolfgang Haken, Recognizing $S^3$, XIII

**Mordell's Conjecture**

243 AH
4:00 pm

Professor D. Grayson, Preparation for Bloch's talk.

**Number Theory**

247 AH
1:00 pm

Professor Harold Diamond, New elementary proof of the prime number theorem, III

**Probability & Statistics**

241 AH
11:00 am

Professor Adam Martinsek; Sequential determination of estimator as well as sample size.

**Wednesday, January 25**

**Combinatorial Algorithms**

237 DCL
3:00 pm

Professor David Muller; Nondeterministic automata are just as powerful as alternating automata, even on infinite trees.

**Thursday, January 26**

**Commutative Algebra**

247 AH
3:00 pm

No meeting today.

**Number Theory**

247 AH
1:00 pm

Professor Bruce Berndt, Report on my life and times in India.

**Friday, January 27**
MATHEMATICAL TIMETABLE

MONDAY, JANUARY 30

TUESDAY, JANUARY 31

Algebra 241 AH 2:00 pm
Professor Irving Reiner, Left vs. right zeta functions.

APPLE Seminar 141 AH 4:00 pm
Professor G. Francis; How an APPLE works.

APPLE Tutorial 102 AH 9:00-11:00 am
Lab Staff: Hires APPLE graphics and statistical applications.

Commutative Algebra 247 AH 3:00 pm
Professor Robert Fossum, Isolated curve and surface singularities, II

Differential Geometry 241 AH 3:00 pm
Professor Samuel Goldberg, The spectrum of the Laplacian, I

Functorial Semantics 250 DCL 1:00 pm
Professor J.W. Gray; The connections between algebraic and denotational semantics, II

Geometric Potpourri 243 AH 2:00 pm
Mr. Michael Enos, The geometry of gymnastics.

Logic 245 AH 1:00 pm
No meeting this week. Future meetings will be at 2 pm on Tuesdays in room 245 AH.

Max Newman Topology 243 AH 11:00 am
Professor Wolfgang Haken, Recognizing S^3, XIV

Mordell's Conjecture 243 AH 4:00 pm
Professor Spencer Bloch, University of Chicago; Heights of abelian varieties.

Number Theory 247 AH 1:00 pm
To be announced.

Probability & Statistics 241 AH 11:00 am
Professor Peter Loeb, A measure theoretic boundary limit theorem.

WEDNESDAY, FEBRUARY 1

Applied Optimization Seminar 199 CHEM ENGR 4:00 pm
Mr. Rick Olson, Interactive software for non-linear optimization.

Combinatorial Algorithms 237 DCL 4:00 pm
Mr. Sangiv Kapoor, The linear net routing problem is NP-Complete.
THURSDAY, FEBRUARY 2

Mathematics Colloquium 314 AH 4:00 pm
Professor Donald Burkholder, From Archimedes to Zygmund: Some problems and recent progress in geometry and Fourier analysis.

Coffee & Tea 321 AH 3:15 pm

APPLE Tutorial 102 AH 9:00-11:00 am
Lab Staff, APPLEsoft basics and APPLE DOS.

Commutative Algebra 247 AH 3:00 pm
Professor Robert Fossum, Curve and surface singularities, III

Functional Analysis 245 AH 2:00 pm
Organizational meeting.

Number Theory 247 AH 1:00 pm
To be announced.

Representation Theory 243 AH 2:00 pm
Professor Leon McCulloh, D(ZG)^+ and the Artin cokernel, continued

Student Probability 241 AH 11:00 am
Mr. Brian Junker, Time changes of square integrable martingales, I

FRIDAY, FEBRUARY 3

No meeting this week
MONDAY, FEBRUARY 6

TUESDAY, FEBRUARY 7

Algebra 241 AH 2:00 pm
Professor Irving Reiner, Stable isomorphism vs. isomorphism for projective modules over integral group rings.

Commutative Algebra 247 AH 3:00 pm
No meeting today.

Differential Geometry 241 AH 3:00 pm
Professor Samuel Goldberg, The spectrum of the Laplacian, II

Functorial Semantics 250 DCL 1:00 pm
Professors S. Kamin and M. Archer, Parametric data types.

Geometric Potpourri 243 AH 2:00 pm
Mr. Michael Enos, The geometry of gymnastics, II

Logic 245 AH 2:00 pm
Professor Carl Jockusch, Recursively enumerable partitions and Ramsey's theorem.

Math-APPLE Seminar 141 AH 4:00 pm
Professor G. Francis; Conclusion of APPLE Introduction No. 1. Question & answer. Organization of 2nd tutorial sequences.

Math-APPLE Tutorial 102 AH 9:00-11:00 am
Lab Staff: Hires APPLE graphics and statistical applications, II

Max Newman Topology 243 AH 11:00 am
Professor Wolfgang Haken, Recognizing $S_n$ and $S_5$.

Mordell's Conjecture 243 AH 4:00 pm
Professor Dan Grayson, Heights of Abelian varieties.

Number Theory 247 AH 1:00 pm
Professor Henryk Iwaniec, Inst. for Advanced Study & Polish Academy of Sciences; Incomplete Kloosterman sums and the divisor problem.

Probability & Statistics 241 AH 11:00 am
Professor Robert Wijsman, Cross sections and distribution of maximal invariants.

WEDNESDAY, FEBRUARY 8

Combinatorial Algorithms 237 DCL 4:00 pm
Professor Glenn K. Manacher and Carol Smith, UICC; New algorithms for interval, circle and circular-arc graphs.
### Mathematics Timetable -2- 2/6-10/84

**THURSDAY, FEBRUARY 9**

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
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<tbody>
<tr>
<td><strong>Mathematics Colloquium</strong></td>
<td>314 AH</td>
<td>4:00 pm</td>
</tr>
<tr>
<td>Professor Ravi S. Kulkarni, University of Indiana, The Riemann mapping theorem for Lorentz metrics.</td>
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<tr>
<td><strong>Coffee &amp; Tea</strong></td>
<td>321 AH</td>
<td>3:15 pm</td>
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<tr>
<td><strong>ABSTRACT:</strong> The classical Riemann mapping theorem, from a differential geometric viewpoint, says that a simply connected two-dimensional Riemannian manifold is conformal to the Euclidean plane, or the standard sphere or the unit disk. We shall develop an analogue of this for Lorentz surfaces.</td>
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<tr>
<td><strong>Commutative Algebra</strong></td>
<td>247 AH</td>
<td>3:00 pm</td>
</tr>
<tr>
<td>Professor Robert Fossum, Curve and surface singularities, IV</td>
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<tr>
<td><strong>Functional Analysis</strong></td>
<td>245 AH</td>
<td>2:00 pm</td>
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<tr>
<td>No meeting today.</td>
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<tr>
<td><strong>Math-APPLE Tutorial</strong></td>
<td>102 AH</td>
<td>9:00-11:00 am</td>
</tr>
<tr>
<td>Lab Staff, APPLEsoft basics and APPLE DOS, II</td>
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<tr>
<td><strong>Number Theory</strong></td>
<td>247 AH</td>
<td>1:00 pm</td>
</tr>
<tr>
<td>Professor Henryk Iwaniec, Primes in arithmetic progression to large modules.</td>
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<tr>
<td><strong>Representation Theory</strong></td>
<td>243 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Professor Leon McCulloh, $D(ZG)^+$ and the Artin cokernel, II</td>
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<tr>
<td><strong>Student Probability</strong></td>
<td>241 AH</td>
<td>11:00 am</td>
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<tr>
<td>No meeting today.</td>
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**FRIDAY, FEBRUARY 10**
MATHEMATICAL TIMETABLE  
February 13-17, 1984

MONDAY, FEBRUARY 13

TUESDAY, FEBRUARY 14

Algebra  
Professor Irving Reiner, Stable isomorphism vs. isomorphism for projective modules over integral group rings, II  
Commutative Algebra  
Professor Robert Fossum, Curve and surface singularities, V  
Differential Geometry  
Professor Horacio Porta, Classification of linear connections, I  
Functorial Semantics  
Professors S. Kamin and M. Archer, Parametric data types, II  
Geometric Potpourri  
No meeting this week.  
Logic  
Professor David Plaisted, CS Dept., Problem representation in Theorem Proving. Several theorem proving representations based on term rewriting systems and resolution in first order logic will be discussed. The emphasis will be on applications to program verification. Current program verification systems will be surveyed briefly.  
Math-APPLE Seminar  
Professor Dan Grayson, Micro computers beyond the APPLE.  
Math-APPLE Tutorial  
Lab Staff: Second novice tutorial I (The APPLE keyboard).  
Max Newman Topology  
Professor Wolfgang Haken, Recognizing $S_3$, XVI.  
Number Theory  
Professor Adolf Hildebrand, Integers free of large prime divisors, I  
Probability & Statistics  
Professor Walter Philipp, Invariance principles for partial sum processes and empirical processes indexed by sets.

WEDNESDAY, FEBRUARY 15

Combinatorial Algorithms  
Professor Douglas West, The jewel thieves' necklace partitioning problem.  
Mordell's Conjecture  
Professor Dan Grayson, Heights of abelian varieties.
ABSTRACT: The differential equations of Hamiltonian mechanics are written in terms of the classical Poisson bracket

\[ \{f, g\} = \sum_{j} \frac{\partial f}{\partial q_j} \frac{\partial g}{\partial p_j} - \frac{\partial g}{\partial q_j} \frac{\partial f}{\partial p_j} \]

of smooth functions on \( \mathbb{R}^{2n} \), and changes of coordinates which preserve this operation (canonical transformations) thus play a preferred role in the Hamiltonian theory. In this talk we consider collections \( F \) of functionally independent real analytic functions; we assume that the Poisson bracket of any pair of functions in the family is functionally dependent on the family. The simultaneous level sets of the functions in \( F \) partition a neighborhood of the base point into a collection of analytic submanifolds. Under a nondegeneracy condition, we show how the foliation is classified, up to the action of a canonical transformation, by a finite dimensional Lie algebra associated to \( F \).
# MATHEMATICAL TIMETABLE

**February 20-24, 1984**

## MONDAY, FEBRUARY 20

### TUESDAY, FEBRUARY 21

**Algebra**

Professor John Walter, Field extensions with a given simple Galois group. A review of the work of Belyi, Thompson and others with applications.

**Commutative Algebra**

No meeting today.

**Differential Geometry**

Professor Horacio Porta, Classification of linear connections, II

**Functorial Semantics**

Professors S. Kamin and M. Archer, Paramemtric data types, III

**Geometric Potpourri**

No meeting this week.

**Logic**

Professor Gaisi Takeuti, Friedman's theorem on a generalized Kruskal's theorem.

**Math-APPLE Seminar**

Professor Dan Grayson, Software.

**Max Newman Topology**

Professor Wolfgang Haken, Recognizing $S^3$, XVII.

**Number Theory**

Professor Adolf Hildebrand, Integers free of large prime divisors, II

**Probability & Statistics**

Professor Tze Leung Lai, Columbia University; Stochastic approximation, recursive least squares and adaptive control.

## WEDNESDAY, FEBRUARY 22

**Combinatorial Algorithms**

Professor J. L. Lewandowski, Optimal folding of programmable logic arrays.

**Mordell's Conjecture**

Professor Dan Grayson, Heights of abelian varieties.
THURSDAY, FEBRUARY 20

Mathematics Colloquium 314 AH 4:00 pm
Professor Tze Leung Lai, Columbia University; Dynamic allocation and the multi-armed bandit problem.

Coffee & Tea 321 AH 3:15 pm
ABSTRACT: See the abstract posted on the mailroom bulletin board.

Commutative Algebra 247 AH 3:00 pm
To be announced.

Functional Analysis 245 AH 2:00 pm
Professor N. T. Peck, To be announced.

Number Theory 247 AH 1:00 pm
Professor Bruce Berndt, An inversion formula for a modified theta-function of Ramanujan.

Representation Theory 243 AH 2:00 pm
Professor Leon McCulloh, D(ZG)⁺ and the Artin cokernel, IV

Student Probability 243 AH 1:00 pm
Mr. Wolfram Strittmatter, Metrics for probability measures and weak dependence.

FRIDAY, FEBRUARY 24

Ph.D. Thesis Defense 443 AH 3:00 pm
Mr. Robert Beezer, Polynomials of the adjacency matrix of a graph. (Paul Weichsel, Director of Thesis Research)
<table>
<thead>
<tr>
<th>Time</th>
<th>Course</th>
<th>Location</th>
<th>Speaker/Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONDAY, FEBRUARY 27</td>
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<tr>
<td>TUESDAY, FEBRUARY 28</td>
<td></td>
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</tr>
<tr>
<td>2:00 pm</td>
<td>Algebra</td>
<td>241 AH</td>
<td>Professor John Walter, Field extensions with a given simple Galois group. A review of the work of Belyi, Thompson and others with applications, II</td>
</tr>
<tr>
<td>9:00 am</td>
<td>APPLE-PASCAL</td>
<td>102 AH</td>
<td>Mr. Cameron Smith, An introduction to the APPLE UCSD PASCAL language.</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Commutative Algebra</td>
<td>247 AH</td>
<td>No meeting today.</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Differential Geometry</td>
<td>241 AH</td>
<td>Professor Saddetin Erdem, Michigan Technological University; Some classification theorems of harmonic maps from Riemann surfaces.</td>
</tr>
<tr>
<td>1:00 pm</td>
<td>Functorial Semantics</td>
<td>237 DCL</td>
<td>Professors S. Kamin and M. Archer, Parametric data types, IV; and Professor J. W. Gray, Many-sorted algebraic theories.</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Geometric Potpourri</td>
<td>243 AH</td>
<td>To be announced.</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Logic</td>
<td>245 AH</td>
<td>Professor Gaisi Takeuti, Friedman's theorem on a generalized Kruskal's theorem, II.</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>Math-APPLE Seminar</td>
<td>141 AH</td>
<td>Professor Dan Grayson, Microcomputer programming languages.</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Max Newman Topology</td>
<td>243 AH</td>
<td>Professor Wolfgang Haken, Recognizing $S^3$, XVIII.</td>
</tr>
<tr>
<td>1:00 pm</td>
<td>Number Theory</td>
<td>247 AH</td>
<td>A subset of distinguished (undistinguished?) practitioners of number theory; Each volunteer will present a 5 minute gem.</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>Pi Mu Epsilon</td>
<td>314 AH</td>
<td>Professor Kenneth Stolarsky; Complex numbers, electrical charge, and statistics - an unfinished interaction.</td>
</tr>
<tr>
<td>3:15 pm</td>
<td></td>
<td>321 AH</td>
<td>Coffee &amp; Tea</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Probability &amp; Statistics</td>
<td>241 AH</td>
<td>Professor Robert Vanderbei, Constructing strong Markov processes from their transition functions.</td>
</tr>
</tbody>
</table>
WEDNESDAY, FEBRUARY 29

**Applied Optimization**

Applied Optimization 199 ADAMS LAB 4:00 pm
Mr. Stan Kerr, Nonlinear programming software maintained by the Computing Services Office will be discussed - principally GRG, MINOS, and the Harwell Library.

**Combinatorial Algorithms**

Combinatorial Algorithms 237 DCL 4:00 pm
Professor Michael Loui, Lower bounds on common knowledge in distributed algorithms with applications.

**Mordell's Conjecture**

Mordell's Conjecture 441 AH 4:00 pm
Professor Dan Grayson, Heights of abelian varieties.

THURSDAY, MARCH 1

**Mathematics Colloquium**

Mathematics Colloquium 314 AH 4:00 pm
Professor Paul Muhly, University of Iowa; Wiener-Hopf equations and $C^*$-algebras.

**Coffee & Tea**

Coffee & Tea 321 AH 3:15 pm
ABSTRACT: For more than twenty years Banach algebra techniques have played a central role in the study of Wiener-Hopf operators and their close relatives, Toeplitz operators. In this talk we describe some of our contributions to the theory of Wiener-Hopf and Toeplitz operators on spaces of functions of several variables. In particular, we give a complete description of the primitive ideal space of the $C^*$-algebra generated by the Wiener-Hopf operators defined over a homogeneous, self-dual cone in Euclidean space. The method of proof uses the theory of groupoid $C^*$-algebras, and we indicate how these methods may be used to construct $C^*$-algebras of Toeplitz operators with surprising properties.

**APPLE-PASCAL**

Apple-Pascal 102 AH 9:00 am
Mr. Cameron Smith, An introduction the the APPLE UCSD PASCAL operating system for programmers who ALREADY KNOW THE LANGUAGE.

**Commutative Algebra**

Commutative Algebra 247 AH 3:00 pm
No meeting today.

**Functional Analysis**

Functional Analysis 245 AH 2:00 pm
Professor Horacio Porta, Continuous selections of complemented subspaces.

**Number Theory**

Number Theory 247 AH 1:00 pm
Mr. Michael Filaseta; Irreducibility criteria for polynomials with non-negative coefficients.

**Representation Theory**

Representation Theory 243 AH 2:00 pm
Professor Leon McCulloh, $D(ZG)^+$ and the Artin cokernel, $V$

**Student Probability**

Student Probability 243 AH 1:00 pm
Mr. Michael Lacey, Conditional expectations and contractive projections in $L^p$.

FRIDAY, MARCH 2
### Mathematical Timetable

**March 5-9, 1984**

#### Monday, March 5

- **Algebra**
  - **241 AH** 2:00 pm
  - Professor John Walter, Field extensions with a given simple Galois group. A review of the work of Belyi, Thompson and others with applications.

#### Tuesday, March 6

- **Algebra** 241 AH 2:00 pm
  - Professor John Walter, Field extensions with a given simple Galois group. A review of the work of Belyi, Thompson and others with applications.

- **APPLE-PASCAL** 102 AH 9:00 am
  - Mr. Cameron Smith, An introduction to the APPLE UCSD PASCAL language.

- **Commutative Algebra** 247 AH 3:00 pm
  - No meeting today.

- **Differential Geometry (Topology)** 241 AH 3:00 pm
  - Professor Howard Osborn, Invariance of characteristic numbers.

- **Functorial Semantics** 237 DCL 1:00 pm
  - Professors S. Kamin and M. Archer, Parametric data types, IV; and Professor J. W. Gray, Many-sorted algebraic theories.

- **Logic** 245 AH 2:00 pm
  - Professor Peter Loeb, A nonstandard functional approach to Fubini's theorem (accessible to nonlogicians).

- **Math-APPLE Seminar** 141 AH 4:00 pm
  - Professor Dan Grayson, Microcomputer programming languages.

- **Max Newman Topology** 243 AH 11:00 am
  - Professor Wolfgang Haken, Recognizing $S^3$, XIX

- **Number Theory** 247 AH 1:00 pm
  - A subset of distinguished (undistinguished?) practitioners of number theory; Each volunteer will present a 5 minute gem.

- **Ph.D. Thesis Defense** 449 AH 1:00 pm
  - Ms. Nadine Nenninga, Immersions of positively curved manifolds into manifolds with curvature bounded above (Stephanie Alexander, Director of Thesis Research)

- **Probability & Statistics** 241 AH 11:00 am
  - No meeting this week.
Applied Optimization 199 ADAMS LAB 4:00 pm
Ms. Caroline Fisk, Mathematical programming problems in transportation systems modeling.

Combinatorial Algorithms 237 DCL 4:00 pm
Dr. Balaji Krishnamurthy, General Electric; Group graphs: A unified view of symmetric interconnection networks.

Mordell's Conjecture 252 EE8 2:00 pm
Professor Dan Grayson, Heights of abelian varieties. (Note Time & Room Change)

THURSDAY, MARCH 8

Mathematics Colloquium 314 AH 4:00 pm
Dr. Michael Stillman, University of Chicago; The computerization of algebraic geometry algorithms.

Coffee & Tea 321 AH 3:15 pm

ABSTRACT: We first introduce the division algorithm and show how it can be used to calculate syzygies. We then apply this to compute finite resolutions, coherent sheaf cohomology, and other objects in commutative algebra and algebraic geometry. Computer programs which calculate these will then be discussed. These programs are useful for generating non-trivial examples. Finally, we will consider some direction for further research.

APPLE-PASCAL 102 AH 9:00 am
Mr. Cameron Smith, An introduction the the APPLE UCSD PASCAL operating system for programmers who ALREADY KNOW THE LANGUAGE.

Commutative Algebra 247 AH 3:00 pm
Professor Howard Osborn, The trace as an algebra homomorphism.

Functional Analysis 245 AH 2:00 pm
Professor J. J. Uhl, Completely continuous operators on $L_2$.

Number Theory 247 AH 1:00 pm
Professor Kenneth Stolarsky, Zeros of Bernoulli polynomials.

Representation Theory 243 AH 2:00 pm
Professor Alfredo Jones, University of Sao Paulo; $D(ZG)^+$ and the Artin cokernel, VI

Student Probability 243 AH 1:00 pm
Mr. Atul Jain, Tanaka's formula for local time.

FRIDAY, MARCH 9
MATHEMATICAL TIMETABLE

MARCH 19-23, 1984

MONDAY, MARCH 19

TUESDAY, MARCH 20

**Trijitzinsky Lecture**
Professor Richard Askey, UW-Madison; Gamma and beta functions and integrals in one and several variables.
Coffee & Tea

**Algebra**
Professor John Walter, Field extensions with a given simple Galois group. A review of the work of Belyi, Thompson and others with applications, III

**APPLE Seminar**
Professor J. W. Gray, Syntax and semantics of pseudo-PASCAL (Note: this is the language used in Math 319).

**Commutative Algebra**
No meeting today.

**Differential Geometry-SPECIAL SEMINAR**
Professor Hassler Whitney, Institute for Advanced Study, Princeton; Geometric origins of the cohomology of groups.

**Functorial Semantics**
Professor J. W. Gray, Many-sorted algebras, sketches, and parametric data types.

**Geometric Potpourri**
No meeting today.

**Logic**
Professor Gaisi Takeuti, Wainer's theorem on the functions which are provably recursive in Peano arithmetic, I.

**Max Newman Topology**
Professor Wolfgang Haken, Recognizing S, XX

**Number Theory**
Professor Claudia Spiro, SUNY-Buffalo; Arranging n, (n), (n) in order of size.

**Probability & Statistics**
Dr. William Eplett, Oxford University; Optimal testing of composite hypotheses.
WEDNESDAY, MARCH 21

**Trjitzinsky Lecture**  
314 AH  
5:00 pm  
Professor Richard Askey, UW-Madison; Orthogonal polynomials old and new.

**Coffee & Tea**  
321 AH  
4:15 pm

**Applied Optimization**  
199 ADAMS LAB  
4:00 pm  
Ms. Caroline Fisk, Mathematical programming problems in transportation systems modeling, II.

**Combinatorial Algorithms**  
237 DCL  
4:00 pm  
Mr. Martin Brady, VLSI routing: four layers suffice.

**Expository Seminar**  
314 AH  
4:00 pm  
Professor Paul Weichsel, What is algebraic graph theory?

**Illinois Series in Mathematics Education**  
Rm #39; Wiley Admin Bldg  
2:30 pm  
Professor Hassler Whitney, Institute for Advanced Study; How can we help students regain their natural powers?

**Mordell's Conjecture**  
252 EEB  
2:00 pm  
Professor Dan Grayson, Heights of abelian varieties.

THURSDAY, MARCH 22

**Trjitzinsky Lecture**  
314 AH  
4:00 pm  
Professor Richard Askey, UW-Madison; A new look at an old inequality.

**Coffee & Tea**  
321 AH  
3:15 pm

**Commutative Algebra**  
247 AH  
3:00 pm  
No meeting today.

**Functional Analysis**  
245 AH  
2:00 pm  
Professor Mahlon Day, How convergence won its spurs in general topology.

**Number Theory**  
247 AH  
1:00 pm  
Professor Claudia Spiro, SUNY-Buffalo; Heath-Brown's proof that $d(n) = d(n+1)$ infinitely often.

**Representation Theory**  
243 AH  
2:00 pm  
Professor Alfredo Jones, University of Sao Paulo; $D(ZG)^+$ and the Artin cokernel, VII

**Student Probability**  
243 AH  
1:00 pm  
No meeting today.

FRIDAY, MARCH 23
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 pm</td>
<td>Expository Seminar 314 AH Professor Carl Jockusch, What is Mathematical Logic?</td>
</tr>
</tbody>
</table>
| 4:00 pm| Mathematics Colloquium 314 AH Dr. Larry Stockmeyer, IBM; Alternation: A survey 
| 4:00 pm| Algebra 241 AH Professor John Walter, Field extensions with a given simple Galois group. A review of the work of Belyi, Thompson and others with applications, IV |
| 4:00 pm| Analysis-Special Seminar 245 AH Dr. Jean Bourgain, Free University Brussels; Applications of martingale transforms to the geometry of Banach spaces and function algebras. |
| 4:00 pm| APPLE Seminar 141 AH Professor J. W. Gray, Syntax and semantics of pseudo-PASCAL (Note: this is the language used in Math 319), I |
| 2:00 pm| Classical Analysis 245 AH Dr. Gabriele Villari, Firenze; Periodic solutions of forced linear differential equations. |
| 2:00 pm| Commutative Algebra 247 AH                                      |
| 2:00 pm| Differential Geometry 241 AH Professor Franz Kamber, Evaluation formulas for residuable characteristic classes of simplicial foliations, I |
| 2:00 pm| Functorial Semantics 237 DCL Professor J. W. Gray, Many-sorted algebras, sketches, and parametric data types, II |
| 2:00 pm| Geometric Potpourri 243 AH No meeting today.                         |
| 2:00 pm| Logic 245 AH See Thursday listing this week.                         |
| 9:00 am| Math-APPLE PASCAL 102 AH Mr. Cameron Smith.                         |
| 11:00 am| Max Newman Topology 243 AH Professor Wolfgang Haken, Recognizing $S^7$, XXI |
| 1:00 pm| Number Theory 247 AH Mr. Paul Pudaite, Problem H-357, Fibonacci Quarterly. The distribution of $k((5+1)/2) \mod 1$ and sums of Fibonacci numbers. |
### TUESDAY—continued

<table>
<thead>
<tr>
<th>Course</th>
<th>Location</th>
<th>Time</th>
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<tbody>
<tr>
<td><strong>Probability &amp; Statistics</strong></td>
<td>241 AH</td>
<td>11:00 am</td>
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<tr>
<td>Professor Ferenc Moricz, University of Szeged; Strong numbers for orthogonal random fields.</td>
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</tbody>
</table>

### WEDNESDAY, MARCH 28

<table>
<thead>
<tr>
<th>Course</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applied Optimization</strong></td>
<td>199 ADAMS LAB</td>
<td>4:00 pm</td>
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<tr>
<td>No meeting today.</td>
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<tr>
<td><strong>Combinatorial Algorithms</strong></td>
<td>237 DCL</td>
<td>4:00 pm</td>
</tr>
<tr>
<td>Mr. Pravin Vaidya, Fast heuristics for weighted Euclidean matching.</td>
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<tr>
<td><strong>Mordell's Conjecture</strong></td>
<td>252 EEB</td>
<td>2:00 pm</td>
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<tr>
<td>Professor Dan Grayson, Heights of abelian varieties.</td>
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<tr>
<td><strong>Pi Mu Epsilon Lecture</strong></td>
<td>314 AH</td>
<td>4:00 pm</td>
</tr>
<tr>
<td>Professor Esther Portnoy, Should insurance rates depend on gender? A (mostly) mathematical exploration.</td>
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<tr>
<td>Coffee &amp; Tea</td>
<td>321 AH</td>
<td>3:15 pm</td>
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</table>

### THURSDAY, MARCH 29

<table>
<thead>
<tr>
<th>Course</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commutative Algebra</strong></td>
<td>247 AH</td>
<td>3:00 pm</td>
</tr>
<tr>
<td>No meeting today.</td>
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<tr>
<td><strong>Functional Analysis</strong></td>
<td>245 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Professor Mahlon Day, How convergence won its spurs in general topology, II</td>
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<tr>
<td><strong>Logic</strong></td>
<td>241 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Professor Gaisi Takeuti, Wainer's theorem on the functions which are provably recursive in Peano arithmetic, II</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Math-APPLE PASCAL</strong></td>
<td>102 AH</td>
<td>9:00 am</td>
</tr>
<tr>
<td>Mr. Cameron Smith.</td>
<td></td>
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</tr>
<tr>
<td><strong>Number Theory</strong></td>
<td>247 AH</td>
<td>1:00 pm</td>
</tr>
<tr>
<td>Professor S. S. Rangachari, Tata Institute of Fundamental Research; Ramanujan and Hecke theory.</td>
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</tr>
<tr>
<td><strong>Representation Theory</strong></td>
<td>243 AH</td>
<td>2:00 pm</td>
</tr>
<tr>
<td>Professor Alfredo Jones, University of Sao Paulo; D(ZG)⁺ and the Artin cokernel, VIII</td>
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<tr>
<td><strong>Student Probability</strong></td>
<td>243 AH</td>
<td>1:00 pm</td>
</tr>
<tr>
<td>Mr. Kwok-Pui Choi, B-convexity and the strong law of large numbers.</td>
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</tbody>
</table>

### FRIDAY, MARCH 30

<table>
<thead>
<tr>
<th>Course</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mathematics Timetable</strong></td>
<td>-2-</td>
<td>3/26-30/84</td>
</tr>
<tr>
<td><strong>Probability</strong></td>
<td>241 AH</td>
<td></td>
</tr>
<tr>
<td><strong>Statistics</strong></td>
<td>241 AH</td>
<td></td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td>-2-</td>
<td>3/26-30/84</td>
</tr>
</tbody>
</table>
# MATHETICAL TIMETABLE

## MONDAY, APRIL 2

### Algebra
- Professor Irving Reiner, $D(ZG^+)$ and the Artin cokernel, IX

### Classical Analysis
See Thursday listing.

### Differential Geometry
- Professor Franz Kamber, Evaluation formulas for residuable characteristic classes of simplicial foliations, II

### Geometric Potpourri
No meeting today.

### Logic
- Professor Kevin Compton, visiting from Wesleyan University; Some lower complexity bounds for theories of trees and unary functions.

### Number Theory
- Professor Bruce Reznick, The asymptotic behavior of a family of sequences: an application of queuing theory to number theory. (Joint with Erdős, Hildebrand, Odlyzko and Pudaite.)

## TUESDAY, APRIL 3

### Departmental Meeting
314 AH 4:00 pm
- Faculty meeting; H. Halberstam presiding.
- Coffee & Tea 321 AH 3:15 pm

### Algebra
- Professor Irving Reiner, $D(ZG^+)$ and the Artin cokernel, IX

### Classical Analysis
See Thursday listing.

### Commutative Algebra
- 247 AH 3:00 pm
- No meeting today.

### Differential Geometry
- 241 AH 3:00 pm
- Professor Franz Kamber, Evaluation formulas for residuable characteristic classes of simplicial foliations, II

### Geometric Potpourri
- 243 AH 2:00 pm
- No meeting today.

### Logic
- 245 AH 2:00 pm
- Professor Kevin Compton, visiting from Wesleyan University; Some lower complexity bounds for theories of trees and unary functions.

### Number Theory
- 247 AH 1:00 pm
- Professor Wolfgang Haken, Recognizing $S^3$, XXII

### Probability & Statistics
- 241 AH 11:00 am
- Dr. Harold Dehling, Universität Göttingen, Invariance principles for partial sums of i.i.d. random variables in the domain of attraction of a stable lab.
Mathematics Timetable

WEDNESDAY, APRIL 3

**Applied Optimization**
Caroline Fisk, Mathematical programming problems in transportation systems modeling, II

**Combinatorial Algorithms**
To be announced.

**Expository Seminar**
Professor Felix Albrecht, What is Control Theory?

**Mordell's Conjecture**
Professor Dan Grayson, Heights of abelian varieties.

THURSDAY, APRIL 4

**Mathematics Colloquium**
Professor Francisco González-Acuña, University of Mexico and University of Iowa;
A characterization of 2-knot groups. The result to be presented is the following theorem: \( G \) is a 2-knot group iff it has a saddled, unlinked, connected, planar presentation.

**Coffee & Tea**

**Apple Seminar**
Professor John Gray, Syntax and semantics of pseudo-PASCAL (Note: this is the language used in Math 319), II

**Commutative Algebra**
No meeting today.

**Functional Analysis**
Professor Mahlon Day, How convergence won its spurs in general topology, III

**Math-APPLE PASCAL**
Mr. Cameron Smith.

**Number Theory & Classical Analysis**
Professor Hourad Ismail, University of Arizona; Some special functions of interest to number theorists and analysts. (Note time and room change)

**Representation Theory**
Professor Leon McCulloh, Title to be announced.

**Student Probability**
Mr. Alok Goswami, On discontinuous additive functions and Levy-measures.

FRIDAY, APRIL 6
<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expository Seminar</td>
<td>4:00 pm</td>
<td>314 AH</td>
</tr>
<tr>
<td>Professor Mahlon Day, What is functional analysis?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Logic Lecture</td>
<td>4:00 pm</td>
<td>247 AH</td>
</tr>
<tr>
<td>Professor Gregory Cherlin, Rutgers; Homogeneous finite structures.</td>
<td></td>
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</tr>
<tr>
<td>Coffee and Tea</td>
<td>3:30 pm</td>
<td>321 AH</td>
</tr>
<tr>
<td>TUESDAY, APRIL 10</td>
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</tr>
<tr>
<td><strong>Algebra</strong></td>
<td>2:00 pm</td>
<td>241 AH</td>
</tr>
<tr>
<td>Professor Leon McCulloh, Stickelberger, D(ZG)+, and the Artin cokernel.</td>
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</tr>
<tr>
<td><strong>Apple</strong></td>
<td>4:00 pm</td>
<td>141 AH</td>
</tr>
<tr>
<td>Professor John Gray, Syntax and semantics of pseudo-PASCAL, (NOTE: This is the language used in Math 319), III</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commutative Algebra</strong></td>
<td>3:00 pm</td>
<td>247 AH</td>
</tr>
<tr>
<td>To be announced.</td>
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<tr>
<td><strong>Differential Geometry</strong></td>
<td>3:00 pm</td>
<td>241 AH</td>
</tr>
<tr>
<td>Professor Franz Kammer, Evaluation formulas for residuable characteristic classes of simplicial foliations, III</td>
<td></td>
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</tr>
<tr>
<td><strong>Functorial Semantics</strong></td>
<td>1:00 pm</td>
<td>237 DCL</td>
</tr>
<tr>
<td>Mr. S. Jefferson, To be announced.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Geometric Potpourri</strong></td>
<td>2:00 pm</td>
<td>243 AH</td>
</tr>
<tr>
<td>Professor Ralph Alexander, Some problems related to Hilbert problem, IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Logic</strong></td>
<td>2:00 pm</td>
<td>245 AH</td>
</tr>
<tr>
<td>No meeting -- see Thursday's listing.</td>
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<td></td>
</tr>
<tr>
<td><strong>Math-APPLE PASCAL</strong></td>
<td>9:00 am</td>
<td>102 AH</td>
</tr>
<tr>
<td>Mr. Cameron Smith.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Max Newman Topology</strong></td>
<td>11:00 am</td>
<td>243 AH</td>
</tr>
<tr>
<td>Professor Wolfgang Haken, Recognizing S^3, XXIII</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number Theory</strong></td>
<td>1:00 pm</td>
<td>247 AH</td>
</tr>
<tr>
<td>Dr. Roger Heath-Brown, Oxford; Title to be announced: Mr. Michael Filaseta, Irreducibility Criteria for Polynomials with non-negative coefficients, II, III</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXPLANATION:** Heath-Brown may talk both times, or Filaseta may talk both times, or Heath-Brown may talk once and Filaseta once, in either order.
<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
<th>Speaker/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. Final</td>
<td>12:00 pm</td>
<td>449 AH</td>
<td>Mr. Jinn-Wen Wu, (Muncaster - Director of thesis), Exponential decay for the St. Venant principle</td>
</tr>
<tr>
<td>Probability &amp; Statistics</td>
<td>4:00 pm</td>
<td>141 AH</td>
<td>Professor Victor Solo, Harvard (visiting Purdue), Modelling of stationary random fields by parametric cepstrum</td>
</tr>
<tr>
<td>Coffee and Tea</td>
<td>3:30 pm</td>
<td>321 AH</td>
<td></td>
</tr>
<tr>
<td>WEDNESDAY, APRIL 11</td>
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</tr>
<tr>
<td>Applied Optimization</td>
<td>4:00 pm</td>
<td>199 ADAMS LAB</td>
<td>Mr. Charles Blair, Optimal doubling in backgammon</td>
</tr>
<tr>
<td>Combinatorial Algorithms</td>
<td>4:00 pm</td>
<td>237 DCL</td>
<td>Professor Clyde P. Kruskal, The importance of being square</td>
</tr>
<tr>
<td>Mordell's Conjecture</td>
<td>2:00 pm</td>
<td>252 EEB</td>
<td>Professor Dan Grayson, Heights of abelian varieties</td>
</tr>
<tr>
<td>THURSDAY, APRIL 12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee &amp; Tea</td>
<td>3:15 pm</td>
<td>321 AH</td>
<td></td>
</tr>
<tr>
<td>Commutative Algebra</td>
<td>3:00 pm</td>
<td>247 AH</td>
<td>Professor John Humphreys, (Liverpool and Notre Dame) Title to be announced.</td>
</tr>
<tr>
<td>Functional Analysis</td>
<td>2:00 pm</td>
<td>245 AH</td>
<td>Professor H. P. Lotz, Analytic Radon-Nikodym Theorem.</td>
</tr>
<tr>
<td>Logic</td>
<td>2:00 pm</td>
<td>243 AH</td>
<td>Professor Kevin Compton, Lower complexity bounds for asymptotic problems.</td>
</tr>
<tr>
<td>Math-APLF PASCAL</td>
<td>9:00 am</td>
<td>102 AH</td>
<td>Mr. Cameron Smith.</td>
</tr>
<tr>
<td>Number Theory</td>
<td>1:00 pm</td>
<td>247 AH</td>
<td>SEE Tuesday's listing.</td>
</tr>
<tr>
<td>Representation Theory</td>
<td>2:00 pm</td>
<td>243 AH</td>
<td>Professor Michel Broué, University of Paris; Title to be announced.</td>
</tr>
<tr>
<td>Student Probability</td>
<td>1:00 pm</td>
<td>243 AH</td>
<td>Mr. Alok Goswami, On discontinuous additive functions and Levy-measures, II</td>
</tr>
<tr>
<td>FRIDAY, APRIL 13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ph. D. Final</td>
<td>4:00 pm</td>
<td>447 AH</td>
<td>Mr. Alberto Raggi-Cardenas (Irving Reiner - Director of thesis) Zeta-functions of 2-sided ideals in arithmetic order</td>
</tr>
</tbody>
</table>
MATHEMATICAL TIMETABLE

MONDAY, APRIL 16

TUESDAY, APRIL 17

Algebra 241 AH 2:00 pm
Professor Leon McCulloh, Stickelberger, D(ZG)$^+$, and the Artin cokernel.

Algebraists Meeting 247 AH 3:00 pm
Meeting to decide on a proposal for Math 317-318.

Analysis Meeting 241 AH 1:00 pm
Meeting of analysts to discuss nominees for a chair position in the department.

Commutative Algebra 247 AH 3:00 pm
No meeting today - see algebra meeting.

Differential Geometry 241 AH 3:00 pm
No meeting today.

Functorial Semantics 237 DCL 12:30 pm
Professor S. Kamin, To be announced.

Geometric Potpourri 243 AH 2:00 pm
Professor Ralph Alexander, Problems related to Hilbert's 4th problem.

Logic 245 AH 2:00 pm
No meeting today.

Math-APPLE PASCAL 102 AH 4:00 pm
Mr. Michael Enos, Gymnastics on the APPLE screen.

Max Newman Topology 243 AH 11:00 am
Professor Wolfgang Haken, Recognizing $S^3$, XXIV

Number Theory 247 AH 1:00 pm
Mr. Michael Filaseta, Irreducibility criteria for polynomials with non-negative coefficients, II

Probability & Statistics 241 AH 11:00 am
Professor Charles R. Henderson, Professor Emeritus at Cornell visiting the Animal Science Department; Some statistical and computational problems in genetics.
Mathematics Timetable

WEDNESDAY, APRIL 18

Applied Optimization
No meeting today.

Algebraic Number Theory
Professor Ali Fröhlich, F.R.S., Cambridge University; Orthogonal representations of Galois groups, Stiefel-Whitney classes, and Hasse-Witt invariants, I

Combinatorial Algorithms
Professor Franco Preparata, Circular range search and related problems.

Expository Seminar
Professor Heini Halberstam, What is analytic number theory?

Mordell's Conjecture
Professor Dan Grayson, Heights of abelian varieties.

THURSDAY, APRIL 19

Mathematics Colloquium
Professor J. J. Kohn, Princeton University; The Dirichlet problem for the complex Monge-Ampere equation.

Commutative Algebra
No meeting today.

Functional Analysis
Professor P. G. Casazza, University of Missouri; Permutatively equivalent bases of Banach spaces.

Number Theory
Professor Gert Almkvist, Partitions into odd, unequal parts of restricted size.

Representation Theory
Professor Leon McCulloh, Stickelberger, \( D(ZG)^+ \), and the Artin cokernel.

Student Probability
No meeting today.

FRIDAY, APRIL 20

Algebraic Number Theory
Professor Ali Fröhlich, F.R.S., Cambridge University; Orthogonal representations of Galois groups, Stiefel-Whitney classes, and Hasse-Witt invariants, II
Algebraic Number Theory 241 AH 2:00 pm
Professor Y. Ihara, Tokyo University & University of Chicago; Profinite analogues of braid groups and number theory.
ABSTRACT: There is a canonical representation of the absolute Galois group, \( \text{Gal}(\overline{\mathbb{Q}}/\mathbb{Q}) \) in a profinite (esp. pro-l) analogue of the braid group arising from the 3-point ramification problem. Some results and several open problems related to the structure of the pro-l braid group, the representation, and their relation with complex multiplications over cyclotomic fields will be discussed.

Algebra Meeting 247 AH 3:00 pm
To discuss courses for Spring '85.

Commutative Algebra 247 AH 3:00 pm
No meeting today - see algebra meeting.

Differential Geometry 241 AH 3:00 pm
Professor John Ratcliffe, Hyperbolic 3-manifolds.

Functorial Semantics 237 DCL 12:30 pm
Professor D. Planted, CS Department; To be announced.

Geometric Potpourri 243 AH 2:00 pm
Professor Ralph Alexander, Problems related to Hilbert's 4th problem, III

Logic 245 AH 2:00 pm
Professor Charles Blair, Business Administration; Guaranteed but impractical trapdoor functions.

Max Newman Topology 243 AH 11:00 am
Professor Wolfgang Haken, Recognizing \( S^3, \ XXV \)

Number Theory 247 AH 1:00 pm
Professor Gert Almkvist, Theta functions and Fibonacci numbers.

Pi Mu Epsilon 314 AH 4:00 pm
Professor Julian Palmore, Vortex dynamics - the dynamics of vortices in fluids.
Reception for new members-coffee 321 AH 3:15 pm

Probability & Statistics 241 AH 11:00 am
Meeting to schedule Spring '85 classes.
Mathematics Timetable  
4/23-27/84

WEDNESDAY, APRIL 25

**Awards Ceremony**  
Ceremony to award the graduate student instructional awards.  
Reception following  
314 AH  
4:00 pm

**Applied Optimization**  
To be announced.  
199 ADAMS LAB  
4:00 pm

**Combinatorial Algorithms**  
Mr. Hosame Abu Amara, Reliable decentralized simulation of resource managers.  
237 DCL  
4:00 pm

**Mordell's Conjecture**  
Professor Dan Grayson, Heights of abelian varieties.  
252 EEB  
2:00 pm

THURSDAY, APRIL 26

**Mathematics Colloquium**  
Professor Walter Feit, Yale University; Group algebras of finite groups.  
314 AH  
4:00 pm

**Algebra**  
Professor Walter Feit, Yale University; Extensions of cuspidal characters of $GL(n,q)$.  
243 AH  
2:00 pm

**Commutative Algebra**  
Professor Gert Almkvist, Ueber diejenigen FHlle, in welchen die Gaussische hypergeometrische Reihe eine algebraische Function ihres vierten Elementes darstellt, OR 345 for adults.  
247 AH  
3:00 pm

**Functional Analysis**  
Professor Robert Kaufman, Some operators in $c_0$, with an application to set theory. (A bucketful of sequences.)  
245 AH  
2:00 pm

**Number Theory**  
Dr. Kevin McCurley, Michigan State University; Prime values of polynomials and irreducibility testing.  
245 AH  
9:30 am

**Representation Theory**  
Professor Stephen Ullom, Class two Galois groups and some classical reciprocity laws. (NOTE TIME CHANGE)  
243 AH  
3:00 pm

**Student Probability**  
Mr. Michael Lacey, A metric entropy condition for sample function continuity.  
243 AH  
1:00 pm

FRIDAY, APRIL 27
Mathematics Colloquium
314 AH
4:00 pm
Professor Richard A. Shore, Cornell University; Unsolvability and relative computability.

Coffee & Tea
321 AH
3:15 pm

ABSTRACT: What is an algorithm? How can we give a precise definition and so prove that some problems have no effective solution (Halting problem, Diophantine equations, word problems for finitely presented groups, etc.)? After dealing with such questions we will consider the notion of relative computability: When do we say that one function is easier to compute or computable from another? We will then discuss the structure of the ordering imposed by this relation on functions \((\mathbb{N} + \mathbb{N})\). Typical questions include: Are there maximal or minimal degrees of difficulty of computation? Are any two functions comparable (i.e., one can be computed from another)? Are the degrees of any functions definable just in terms of relative computability? (No previous acquaintance with logic or computability will be assumed.)

Algebraic Number Theory
241 AH
2:00 pm
Professor Guy Henniart, CNRS, France, and Institute for Advanced Study; Applications of the trace formula to the local Langlands' conjecture.

Differential Geometry
241 AH
3:00 pm
Professor John Ratcliffe, Hyperbolic 3-manifolds, II

Functorial Semantics
237 DCL
12:30 pm
To be announced.

Logic
245 AH
2:00 pm
See Thursday listing.

Max Newman Topology
243 AH
11:00 am
Professor Wolfgang Haken, Recognizing \(\mathbb{S}^3, \text{XXVI}\)

Number Theory
247 AH
1:00 pm
Professor Kenneth Stolarsky, Zeta functions, convergence of sequences of polynomials, and the renewal equation.

Probability & Statistics
241 AH
11:00 am
Professor John Marden, How to choose a test statistic based on asymptotic criteria.
Mathematics Timetable

WEDNESDAY, MAY 2

Mordell's Conjecture
Professor Dan Grayson, Heights of abelian varieties.

Representation Theory
Professor Stephen Ullom, Class two Galois groups and some classical reciprocity laws, II

THURSDAY, MAY 3

Logic
Mr. Peter Lindsay, Alternating Turing machines on infinite strings. (Note room change.)

Math APPLE
Professor George Francis, Report on the first semester of mathematical microcomputing. Organization of summer program. If you are planning to use lab facilities for your summer school classes, please come to this meeting.

Number Theory
Number Theory courses for Spring, 1985 will be discussed.

Student Probability
Mr. Michael Lacey, A metric entropy condition for sample function continuity, II (Note room change.)

FRIDAY, MAY 4