NORTHEASTERN SECTION

NEWSLETTER

FALL 1986

VOLUME 8 NUMBER 2

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FUTURE MEETINGS

SPRING, 1987

The Spring, 1987 meeting will be at **Connecticut College. Walter Brady** and **Ernest Schlesinger** will coordinate local arrangements.

FALL, 1987

The Fall, 1987 Meeting will be held at **Bentley College. Karen J. Schroeder** will handle local arrangements. The Fall Meeting is traditionally held on the last weekend before Thanksgiving.

FALL 1986 MEETING

The Fall, 1986 Meeting will be held on November 21-22 at **Worcester Polytechnic Institute**, Worcester, Massachusetts. The theme of the meeting is **Mathematics and Computers.** Program information begins on page 6 of this newsletter.

Program Chair is **Bill Roberts**, of Plymouth State College. **Peter Christopher** of WPI is the Local Arrangements Chair.

FROM THE CHAIR

Summer, 1986, was an active and exciting time for American mathematics. The International Congress of Mathematicians was, of course, the focus of most of the activity. The Northeast Section was well represented at ICM '86 and there will be ample time at our November meeting to exchange stories and bring colleagues up to date on what transpired at that week-long gathering of over three thousand mathematicians. The Section member who traveled the farthest to attend ICM '86 was probably Eric Nummela, former Section Chairperson, now New England College's Dean of their British Campus. He sends his regards to all.

One result of the publicity occasioned by ICM '86 may very well be a wider appreciation of what mathematicians actually do. Many interviews on TV and in the newspapers attempted to have mathematicians explain their profession to the lay public. Note that in keeping with this effort, Professor Ernst Snapper, the Christie lecturer for this Fall, will speak to his colleagues on a similar topic, "What do we do when we do mathematics?" While more philosophical and mathematical than promotional, Professor Snapper's topic reflects the recent activity in professional internal analysis and self evaluation encouraged by the external forces of technological advance and the contraction of research funding.

It was interesting to compare the activities of the Northeast Section with those of the other twenty eight sections of the MAA during the Section officers' meeting. In comparison, our program of biyearly meetings, annual short courses and other conferences and workshops is extensive. The success of our student participation and contributed papers presentations was also notable. We do share many similar problems, however, among them increasing the participation of research university faculty, including two-year college concerns in program planning, and increasing student interest and participation in all MAA activities. The Executive Board of the MAA during its meetings identified two items for its long range agenda: nurturing student talent and increasing public awareness.

Three faculty have added their expertise to the Executive Committee of the Northeast Section. H. T. (Pete) Hayslett, Jr., Colby College, will be our representative to the Committee on Placement Examinations; Ken Lane, Colby College, will continue as Public Information Officer; and Ernest Schlesinger, Connecticut College, will be the local arrangements coordinator for the Spring 1987 meeting at Connecticut College. Gail Lange and Russell Rainville will resign as Contributed Papers co-chairpersons. We thank them for their efforts over

the past several years and are looking for a volunteer to coordinate our contributed paper sessions.

The business meeting on Saturday, November 22, will include elections for Vice Chairperson, Secretary-Treasurer and Two-year College Representative. I hope to see you there.

Steven K. Ingram

CALL FOR STUDENT PAPERS

Students (and recent graduates) are invited to present papers at the Fall Meeting on topics in mathematics, statistics, or computer science. The presentations will be 15 to 20 minutes in length, on either expository work, research projects, employment experiences, or problems from math periodicals. Prizes will be awarded, and the registration fee is waived for student presenters at all Section meetings.

Almost every college/university has students working on projects, problems, and minor mathematical research. The success of a student paper session depends primarily on faculty members identifying prospective papers, encouraging their students, and arranging department financial support when possible. If there are no potential student papers on your campus for the Fall Meeting, we urge you initiate student projects now for presentation at the Spring Meeting.

Interested students should send an abstract and current address and phone number, by November 7 to: Dennis M. Luciano, Department of Mathematics and Computer Science, Western New England College, Springfield, MA 01119 (413-782-3111 ext 275). All proposals will be reviewed by Department faculty members.

CALL FOR CONTRIBUTED PAPERS

At both the Fall and Spring Meetings we will have contributed papers sessions. Members are urged to participate; let your colleagues know what your are doing!

Abstracts for the Fall Meeting should be sent by October 31 to: Gail Lange, Department of Sciences and Mathematics, University of Maine at Farmington, 112 Main Street, Farmington, ME 04938.

Gail Lange and Russ Rainville are resigning as Contributed Papers Coordinator co-chairs. If you would consider volunteering please let Steve Ingram, Section Chair, know.

GOVERNOR'S MESSAGE

The August meeting of the Board of Governors in Berkeley included a session on long range planning at which John Polking, Director of the NSF's Division of Mathematical Sciences, made a presentation which he began by discussing the growing shortage of qualified mathematics faculty. He pointed out that this nation's production of PhDs is at the level at which it was in the mid 1960s. Of those, 45% are foreign-born, a percentage which is predicted to climb to 55% in the near future, and a substantial number of that 45% are from countries such as Mainland China which require that the new PhDs return there.

Much of Polking's presentation was taken from Undergraduate Science, Mathematics and Engineering Education, a report submitted in March by a National Science Board Task Committee. That report goes on to say that this "major decrease in the rate of production of PhDs in mathematics is occurring simultaneously with an increase in the number of non-academic jobs that are available for mathematicians and an almost explosive rise in registrations in relatively elementary mathematics courses in colleges and universities.

"The enrollment increase derives from larger enrollments in engineering and some science curricula, and the steady rise over the past twenty years in the amount of instruction that must be done to remedy deficiencies in the mathematical preparation of students in the secondary schools. When coupled with falling PhD production in the field, these factors combine to worsen the conditions of faculty employment.

"As in science and especially in engineering, instruction at the elementary and remedial level in mathematics is done increasingly by graduate teaching assistants or adjunct faculty, many of whom do not communicate well in English. The senior faculty must teach the more advanced courses and their reluctance to 'teach more and more junior high school mathematics to college age students' is understandable. Several persons (have) testified that a substantial research effort in the 'teaching and learning' areas should be directed at secondary school mathematics in hope of improving that instruction so that remediation would not be required in the colleges.

"The decrease in faculty supply and increase in student enrollments have resulted in steadily rising teaching loads for mathematics faculty. Time for the individual research that characterizes the field, and for other kinds of faculty refreshment and development is decreasing perhaps even more in the college than in the university. Witnesses (have) stated that, for these and other reasons, it would be timely and beneficial for institutions, governments, and their agencies, including the National Science Foundation, and private sources of funding, to invest seriously in programs of faculty development in mathematics."

Copies of this report (which include its conclusions and recommendations) may be obtained by writing the National Science Board, 1800 G St., N.W., Washington, D.C. 20550. I recommend it to you.

James E. Ward
Governor

INSTITUTE FOR RETRAINING IN COMPUTER SCIENCE (IFRICS)

The IFRICS program runs under the auspices of the ACM/MAA Joint Committee on Retraining. It is designed to provide faculty from other disciplines, such as mathematics, with the qualifications necessary to teach a major portion of the ACM '78 core curriculum in computer science. Faculty are selected from among the top computer science departments in North America based upon outstanding records in both research and teaching.

DATES: Clarkson University, June 1, 1987-July 31, 1987
Kent State University, June 15, 1987-August 14, 1987

Interested candidates should write for more information and application forms to the director at either campus:

Ed Dubinsky, IFRICS Director
Dept. of Math. & Comp. Sc.
Clarkson University
Potsdam, NY 13676
Phone: (315) 268-2382

Darrell Turnidge, IFRICS Director
Dept. of Mathematical Sciences
Kent State University
Kent, Ohio 44242
(216) 672-2077

SOFTWARE EXCHANGE

Copies of the Microcomputer Software Exchange list will be available at the registration desk at the fall meeting. Also, you may obtain a copy by sending $1.00 to Steve Snover, University of Hartford (West Hartford, CT 06117), or Thurmon Whitley, University of New Haven (West Haven, CT 06516).

Some current titles on the list are: Class Roster, Nim, Markov Chains, Least Squares Line and other Statistics Programs, Combinatorics Programs, Linear Programming, Operating Room Simulation, Eigenvalues and Eigenvectors, etc., etc.

We need listings for Commodores, IBM's, Apple IIc's and Apple Macintosh's. If you have written public domain programs for any of these machines, please send the relevant information to either Steve Snover or Thurmon Whitley.

MINUTES OF THE LAST MEETING

The spring meeting of the Northeastern Section was held June 13,14 at the University of New Hampshire, Durham, New Hampshire. The meeting was held jointly with the American Statistical Association and carried the theme "On the Teaching of Undergraduate Statistics." There were 110 registrants.

Invited Addresses:

Statistics for Everyone - Why or Why Not?, by Michael Rood, Asnuntuck Community College.

The Statistician Goes to Court (or Statistical Assessments as Evidence in the Courts), by Stephen Fienberg, Carnegie-Mellon University.

Nearness Relations Among Measures of Central Tentency and Dispersion, by Warren Page, New York City Technical College, CUNY.

Influence and Collinearity in Regression: What Students Need to Know About Regression Diagnostics, by David C. Hoaglin, Harvard School of Public Health.

Contributed Papers:

Vandermonde, by James J. Tattersall, Providence College.

Universal Time and the Volocity of Light, by Parry Moon, Massachusetts Institute of Technology, Domina E. Spencer, University of Connecticut, Euclid E. Moon, Massachusetts Institute of Technology.

Inaccuracies in the Reporting of Statistical Test Results: A Statistics Class Exercise, by Joseph S. Rossi, University of Rhode Island.

The Theory of Retarded Potentials, by Arjan S. Mirchandaney, Cornell University, Domina E. Spencer, University of Connecticut, Shana Y. Una, University of Connecticut.

A New Method for Solving Linear Nth Order Inhomogeneous Ordinary Differential Equations, by Gerard Coutu, Hartford Graduate Center.

Case Studies:

Getting It Right Consistently: Experimental Design, by Ken Constantine, University of New Hampshire.

Are Male and Female Teachers Paid Differently?, by Arlene Ash, Boston University School of Medicine and School of Public Health.

Making Clinical Trials More Efficient, by David Harrington, Dana-Farber Cancer Institute and Harvard School of Public Health.

Panel Discussion:

Use of the Computer in Teaching Statistics, by John McKenzie (Chair), Babson College; Bob Goldman, Simmons College; Terrence Tivman, Harvard University.

Student Papers:

Primality Tests and Computer Algorithms for Implementation, by Robin L. Lumsdaine, Brown University.

Knowledge Acquisition for Expert Systems, by Michael Mertens, Western New England College.

The Richardson Model of the USA and USSR Nuclear Arms Race, by Joseph W. Hogan, University of Connecticut.

Run Length Coding, by Peter M. Benbenek, North Adams State College.

A Postulational Formulation of the Michaelson-Morley Experiment, by Euclid Eberle Moon, Massachusetts Institute of Technology.

Gordon D. Prichett
Secretary-Treasurer

THE FALL 1986 MEETING

The Fall Meeting of the Northeastern Section of the MAA will be held at Worcester Polytechnic Institute (WPI), Worcester, Massachusetts, on Friday and Saturday, November 21-22, 1986. The theme of the meeting is Mathematics and Computers, broadly interpreted to include philosophical and pedagogical issues.

Early arrivals on Friday afternoon can witness demonstrations in the areas of computer-aided design and robotics. The first talk is by Professor J Martin Borden, WPI. After a reception and banquet, Professor Roland E Larson of Pennsylvania State University will address the group. The traditional social hour follows.

Saturday morning is highlighted by a student paper session and by speakers Andrew Odlyzko of AT&T Bell Labs and Dartmouth Professor Ernst Snapper, this year's Christie Lecturer. The afternoon features a contributed paper session and presentations by Professor Kenneth P Bogart of Dartmouth and Solomon Garfunkel of COMAP. Publishers and software companies will exhibit throughout the day.

Participants are encouraged to make arrangements for accomodations directly with the hotels by November 3. A block of 50 rooms is reserved at the Worcester Marriott until that date.

Pre-registration forms (inside back cover of this newsletter) should be sent with checks by November 3.

NOMINATIONS

On behalf of the Nominating Committee for the North-East Section of the MAA, I am pleased to recommend the following list of nominees:

Vice Chair

Dennis M. Luciano	(Western New England College)
James J. Tattersall	(Providence College)

Secretary/Treasurer

Laura L. Kelleher	(Massachusetts Maritime Academy)
Kenneth D. Lane	(Colby College)

Two-year College Representative

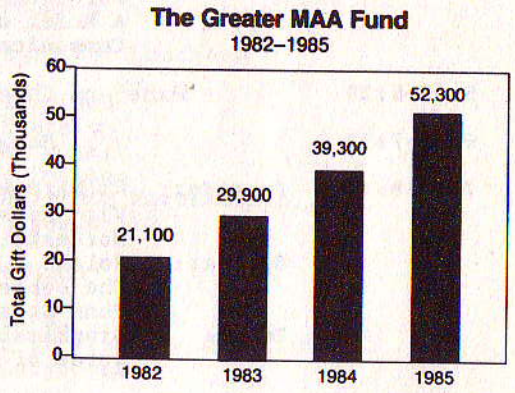
Jean B. Smith	(Middlesex Community College)

Nominating Committee:

Kenneth Schoen, Worcester State College, Chair
Thurmon Whitley, University of New Haven
John Smith, Merrimack College

The MAA Development Officer has asked that this graph be printed.

The 1986 goal is $75,000 and 1600 donors.



NORTHEASTERN SECTION OF THE MAA

FALL MEETING
Nov 21-22, 1986

WORCESTER POLYTECHNIC INSTITUTE

WORCESTER, MASSACHUSETTS

PROGRAM

FRIDAY, NOVEMBER 21

3:00-6:00 REGISTRATION: Salisbury Laboratories Lounge Area

3:30-4:20 COMPUTER RELATED ACTIVITIES

A) **Computer-Aided Design (CAD) Demonstration**
Kenneth E. Scott
Worcester Polytechnic Institute

B) **Computer-Intregated Manufacturing (CAM) Demonstration**
David P. Asmus
Worcester Polytechnic Institute

3:30-4:20 Executive Committee Meeting

4:30-5:20
Presider: Gordon W. Branch
Worcester Polytechnic Institute
Speaker: J. Martin Borden
Worcester Polytechnic Institute
Topic: **A Model of A Two-Way Interfering Communication Channel**

5:30-6:20 Wine and Cheese Reception

6:30-7:30 Banquet

7:45-8:45
Presider: Richard H. Gallagher
Vice President, Dean of Faculty
Worcester Polytechnic Institute
Speaker: Roland E. Larson
The Behrend College
Penn State University
Topic: **Graphical Representations of Complex Zeros of Polynomial Functions**

9:00 Social

SATURDAY, NOVEMBER 22

8:00-10:00 REGISTRATION: Salisbury Laboratories Lounge Area

8:00-9:00 Student Papers Session

9:00-4:00 Publishers and Computer Software Companies Exhibit

9:00-9:40 Coffee and Pastry

9:40-9:45 Welcome Address

Jon Strauss, President
Worcester Polytechnic Institute

9:50-10:45
Presider: Steven K. Ingram
Norwich University
Speaker: Andrew Odlyzko
ATT Bell Labs
Topic: **On the Distribution of Zeros of the Zeta Function**

10:50-11:45 The Christie Lecture

Presider: James E. Ward
Bowdoin College
Speaker: Ernst Snapper
Dartmouth College
Topic: **What Do We Do When We Do Mathematics?**

11:45-12:10 Business Meeting
Election of Officers

12:20-1:35 Buffet Luncheon

12:20-1:35 MAA Representatives Buffet Luncheon

1:50-2:45
Presider: John F. Kennison
Clark University
Speaker: Kenneth P. Bogart
Dartmouth College
Topic: **What is Discrete Mathematics, and Why Do We Teach It?**

3:00-4:00 Contributed Paper Session

3:00-4:00
Presider: Paul W. Davis
Worcester Polytechnic Institute
Speaker: Solomon Garfunkel
COMAP
Topic: **"For All Practical Purposes" - Applications in the Undergraduate Curriculum**

A Model of a Two-Way, Interfering Communication Channel
J. Martin Borden, Worcester Polytechnic Institute

Two parties wish to exchange binary information as rapidly and efficiently as possible along a link (channel) that can be thought of as outputting to each party the logical 'or' of the two input signals. (That is, the output is '1' unless both parties transmit '0'.) Such a situation can arise in modeling a local area network where pulse position modulation is used.

A survey of what is known about the classical unsolved problem of maximizing communication rates will be given. In addition, some new explicit coding methods will be discussed.

J. Martin Borden is an Assistant Professor in the Department of Mathematical Sciences at WPI; he received his PhD in Mathematics in 1981 from the University of Illinois at Urbana-Champaign. His research interests center about information theory and coding theory, especially dealing with combinatorial aspects of problems in these areas. He is a member of the MAA, AMS, and IEEE.

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Graphical Representation of Complex Zeros of Polynomial Functions
Roland E. Larson, The Behrend College, Penn State University

Let f be a polynomial function and define a real-valued function of two real variables by

$$g(x, y) = -|f(x + yi)|^2.$$

The graph of g is a surface lying below the xy-plane. The maximum points of g correspond precisely to the zeros of f. The real zeros of f correspond to the maximum points of g lying on the x-axis, and the complex zeros of f correspond to the maximum points of g lying elsewhere in the xy-plane. With this model, one can use computer graphics to picture all the zeros (both real and complex) of the polynomial function f with much the same ease as the real zeros of f are pictured in a standard two-dimensional graph.

Professor Larson received an MS (1968) and PhD (1970) from the University of Colorado. He has been on the faculty of the Pennsylvania State University since 1970, where he has been Professor of Mathematics since 1983. He has long standing memberships in the MAA, AMS and NCTM. Besides several articles on topology, he is the author of seven current textbooks, (Calculus, Mathematics for Everyday Living, Brief Calculus with Applications, Precalculus, Algebra and Trigonometry, College Algebra, Trigonometry) with another, Elementary Linear Algebra, scheduled for 1988.

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On the Distribution of Zeros of the Zeta Function
Andrew M. Odlyzko, AT&T Bell Laboratories, Murray Hill, NJ

The Riemann Hypothesis is perhaps the most important open problem in mathematics. Other conjectures have been made that go even beyond the Riemann Hypothesis and relate the distributions of zeros of the zeta function to the random matrix theories of high energy physics. These conjectures, as well as the numerical evidence in their favor, will be reviewed.

Dr. Odlyzko received his PhD in Mathematics from MIT in 1975, and is currently head of the Mathematical Studies Department at AT&T Bell Laboratories. His research interests are in number theory, cryptography, computational complexity, combinatorics, coding theory, analysis, and probability theory. He was an invited speaker at the 1986 International Congress of Mathematicians and at annual meetings of the AMS (1981) and the Australian Math. Soc. (1983). He is on the editorial boards of IEEE Information Theory Transactions, Math. Comp., Proc. AMS, J. algorithms, and Aequationes Math. He is a member of AMS, ACM, EATCS, IEEE, IACR, MAA, and SIAM.

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The Christie Lecture: ***What Do We Do When We Do Mathematics?***
Ernst Snapper, Dartmouth College

There are several theories of truth in philosophy and each one has its own logic and gives rise to its own mode of mathematics. Two of these truth theories will be discussed in the talk, namely the correspondence theory of truth and the pragmatic theory of truth. The first theory gives rise to classical mathematics and the second one to intuitionism.

All philosophical issues will be explained. There are no philosophical prerequisites for understanding the talk.

Professor Snapper, born in Holland, came to the United States in 1938. He has served on the faculties at Princeton, University of Southern California, Harvard, Miami University of Ohio, and Dartmouth College. He is a member of the AMS, Can. Congress Math., MAA (he was president of the Indiana Section in 1962-1963), AAUP, AAAS, Societe Mathematique De France, and Circolo Mathematico Di Palermo. Professor Snapper has been at Dartmouth since 1963, where he has held the chair of Benjamin Pierce Cheney Professor of Mathematics since 1971.

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What is Discrete Mathematics and Why Do We Teach It?
Kenneth P. Bogart, Dartmouth College

This talk will begin with a summary of a national poll of departments of Mathematics and of Computer Science on the need for, plans for, and contents of discrete mathematics courses in the first two years of college mathematics. This will be followed by several examples which illustrate both the importance and interrelationships of several of the central

topics of a discrete mathematics course: algorithms, induction, functions, recurrences, and trees as well as some less central (but equally useful) topics as time permits. These examples lend credence to the assertion that the role of discrete mathematics in computer science is parallel to and as important as the role of calculus in engineering science.

The talk will conclude with remarks about the unity of discrete mathematics as a subject in comparison with calculus, the role of discrete mathematics courses in preparing students for future mathematics courses and about where discrete mathematics courses fit most usefully in a sequence of freshman and sophomore mathematics courses.

Kenneth P. Bogart is Professor of Mathematics and Computer Science at Dartmouth Colege. He received his BS in mathematics from Marietta College in 1965 and his PhD in mathematics from CalTech in 1968. He has been a faculty member at Dartmouth College ever since. As a graduate student his research interests were in commutative ring theory and related lattice theory. At the 1970 NSF Summer Institute in Combinatorics at Bowdoin College he began working in combinatorial mathematics, especially the combinatorics of ordered sets. Since then he has worked with consensus problems in the social sciences, error correcting codes, the algebraic theory of enumeration, matroids and algorithms. His most recent work is in applications of combinatorial mathematics in Computer Science. He is the author of The Functions of Algebra and Trigonometry (Houghton Mifflin, 1977) and Introductory Combinatorics (Pitman, 1983) and is currently completing a third book, Discrete Mathematics, to be published by D.C.Heath. He is a member of the MAA, the AMS, and SIAM.

*****

Applications in the Undergraduate Curriculum
Solomon Garfunkel, COMAP

We will preview the new television series For All Practical Purposes: Introduction to Contemporary Mathematics, showing how it can help to infuse applications into the undergraduate curriculum.

Dr. Garfunkel, Executive Director of the Consortium for Mathematics and Its Application (COMAP), received his PhD in 1967 from the University of Wisconsin and served on the mathematics faculty of Cornell University and the University of Connecticut, Storrs. He has served as Project Director for several major mathematics curriculum-development projects funded by the National Science Foundation. He is currently Project Director and Host for the 26 half-hour television series For All Practical Purposes, which will air on PBS in fall 1987.

LODGING

A block of 50 rooms at the Worcester Marriott Hotel has been reserved in the name of WPI for the Meeting. Located within 15 minutes walking distance from campus, the Marriott is offering rooms with two double beds at the reduced flat rate of $56 per room. Because of events in the city, including the Holy Cross-Boston College football game that weekend, hotel space may be scarce; **Room reservations at the Marriott are on a first-come first-served basis, and must be made directly with the hotel no later than November 3, 1986.**

Worcester Marriott 10 Lincoln Square Worcester, MA 01608 (617) 791-1600	$56.00 flat rate per room (Exit 17 off I-290 East Bound, Exit 18 off I-290 West Bound)

Other recommended hotels within one mile from the Campus and offering special rates for the Meeting participants are:

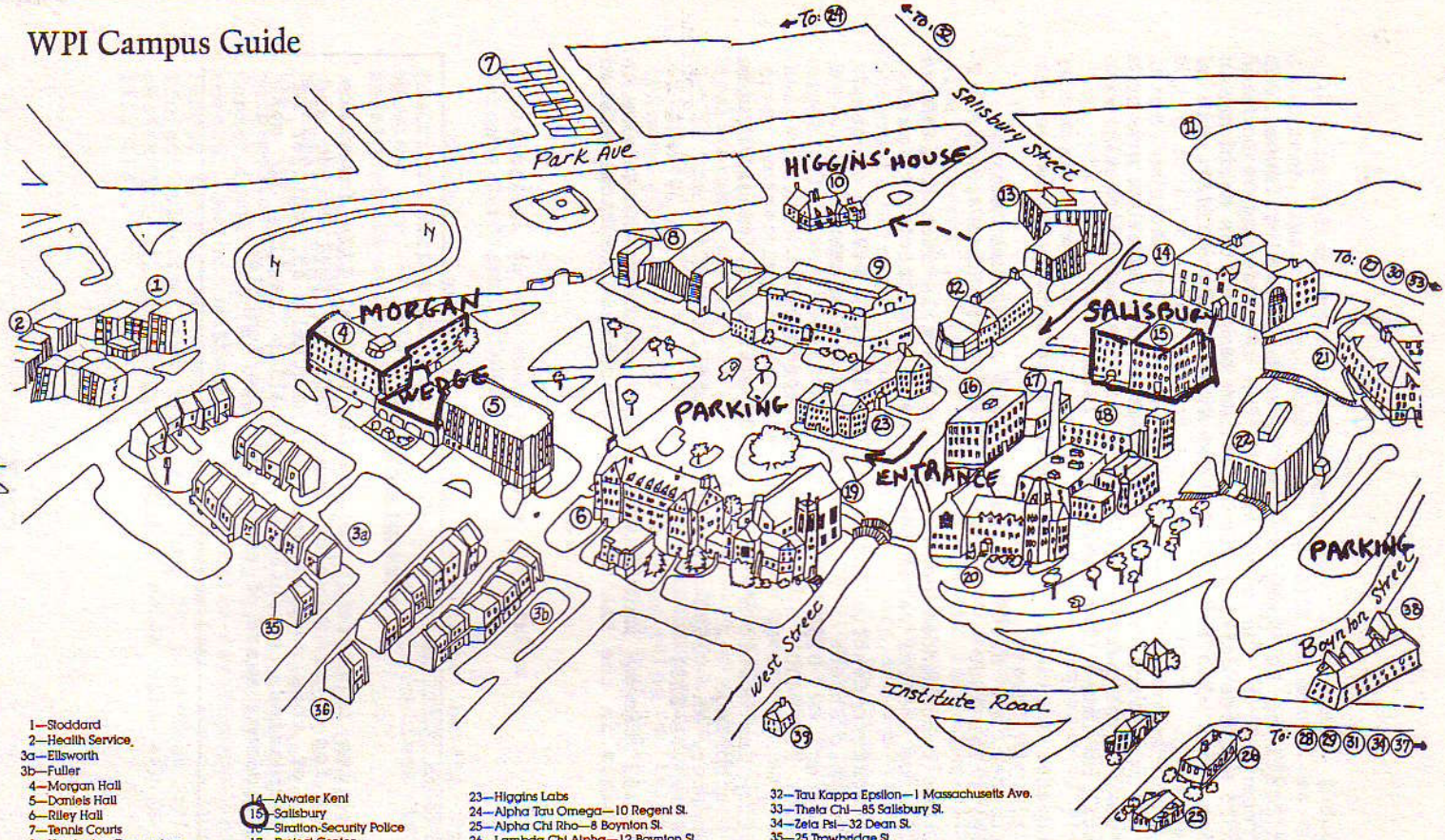
Best Western Centrun Inn 110 Summer Street Worcester, MA 01608 (617) 757-0400	$42.00 single, $49.00 double, includes breakfast. (Exit 16 off I-290)
Quality Inn Downtown 70 Southbridge St. Worcester, MA 01608 (617) 791-2291	$49.00 flat rate, single/double (Exit 13 off I-290)

In all cases, individuals should identify themselves as participants in the MAA Meeting to guarantee the rates listed above.

ACKNOWLEDGEMENT

The Section is grateful to the **Unionmutual Life Insurance Company** for a grant which supported the publication and mailing of this *Newsletter*. Unionmutual, an employer of many actuaries, encourages mathematics faculty to make their students aware of actuarial opportunities.

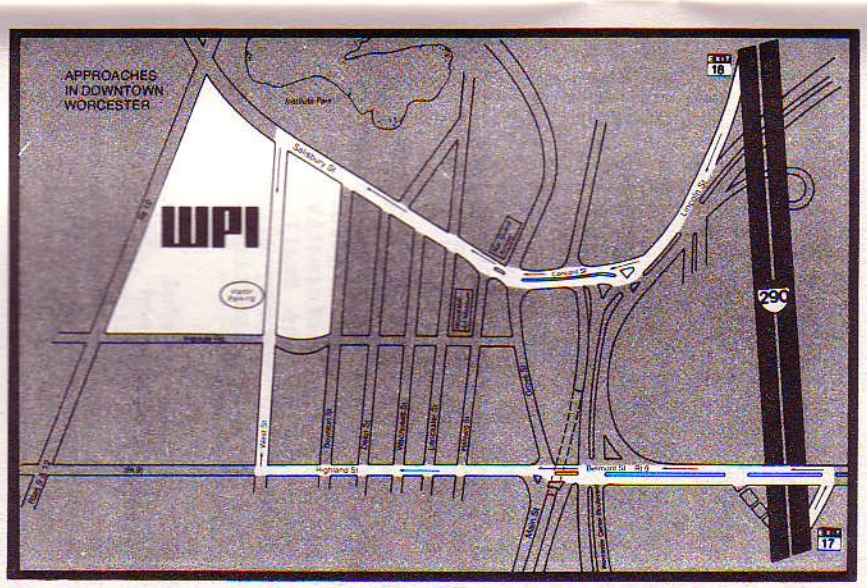
WPI Campus Guide

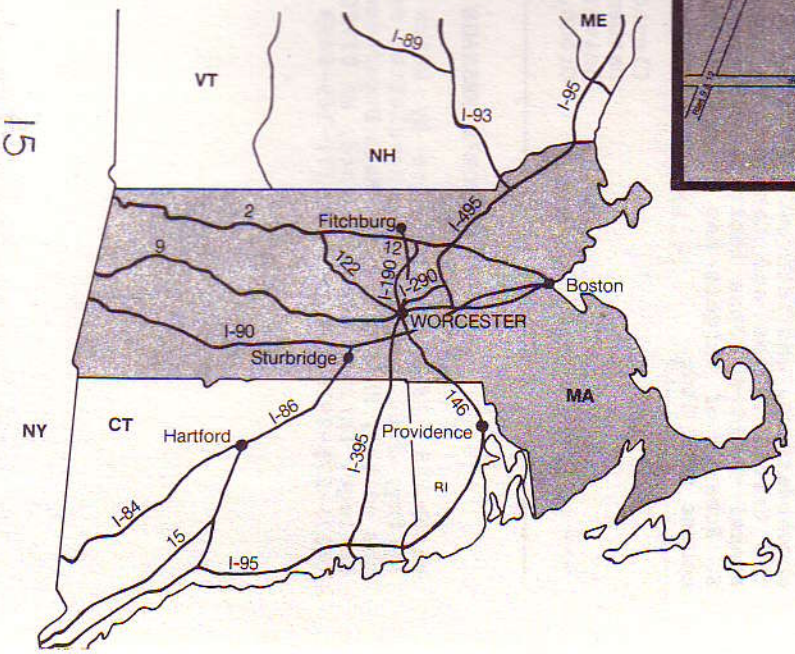


1—Stoddard
2—Health Service
3a—Ellsworth
3b—Fuller
4—Morgan Hall
5—Daniels Hall
6—Riley Hall
7—Tennis Courts
8—Harrington Gymnasium
9—Alumni Gymnasium
10—Higgins House
11—Institute Park
12—Olin Hall
13—Goddard Hall
14—Atwater Kent
15—Salisbury
16—Stratton-Security Police
17—Project Center
18—Washburn—IQP Center
19—Alden Hall
20—Boynton Hall
21—Kaven Hall
22—Gordon Library—W.A.C.C.C.
23—Higgins Labs
24—Alpha Tau Omega—10 Regent St.
25—Alpha Chi Rho—8 Boynton St.
26—Lambda Chi Alpha—12 Boynton St.
27—Phi Gamma Delta—99 Salisbury St.
28—Phi Kappa Theta—26 Institute Rd.
29—Phi Sigma Kappa—11 Dean St.
30—Sigma Alpha Epsilon—6 Humboldt Ave.
31—Sigma Pi—17 Dean St.
32—Tau Kappa Epsilon—1 Massachusetts Ave.
33—Theta Chi—85 Salisbury St.
34—Zeta Psi—32 Dean St.
35—25 Trowbridge St.
36—28 Trowbridge St.
37—Phi Sigma Sigma—55 Wachusett St.
38—Founders Hall
39—Counseling Center

FROM THE WEST: Take Exit 10 off the Massachusetts Turnpike at Auburn. Take Rte. I-290 into Worcester. Get off at Exit 17 (Lincoln Square, Belmont St. Rte. 9) and turn left off ramp. Continue through Lincoln Square to Highland St. following Rte. 9. At West St., turn right to the WPI Campus.

FROM THE EAST: Take the Massachusetts Turnpike (Interstate 90) to Exit 11A. Then take I-495 north to I-290. Take I-290 west to Worcester, getting off at Exit 18. At the exit, turn right at the traffic light, then go a very short block and take a right at the next light (Concord St.). Go straight through the intersection at the next light, bearing right (onto Salisbury St.). Follow Salisbury St. to the top of the small hill opposite the park where you will turn left onto West St. and drive into the WPI Campus.





1986 UM SHORT COURSE A TUCKER TRIUMPH

In 1981 Professor Alan Tucker presented the Northeast Section short course at the University of Maine with a series of lectures on Combinatorial Problem Solving. This past June he returned from SUNY at Stony Brook to present the 1986 short course on A New Unified Approach to Linear Algebra. Motivation was the underlying theme in presenting linear algebra. Start with concrete examples that require the concept you are about to define. Solve a couple of problems that will utilize that concept. Observe the common thread in the problems and then define the corresponding concept. Taken from his new linear algebra text, the material emphasizes Tucker's philosophy that insights gained from numerical analysis and various applications seem to provide a superior way to develop a conceptual understanding of most linear algebra theory.

The mid-week trip to Mount Desert Isle included the usual picnic in the rain, this year followed by clearing and a delightful afternoon away from classroom rigors. That evening's pizza party concluded with an informative lively discussion of classroom problems, led by Don Small and Alan Tucker. The social activities concluded Thursday evening with a lobster-steak banquet, enjoyed by all 44 participants, and the course terminated with lunch on Friday.

Another excellent lecturer with useful ideas, the University of Maine's tasty and varied food and pleasant accomodations, and interesting participants from many parts of the United States and Canada combined to make this eighth annual MAANES-UM June short course another great event. Fred S. Roberts of Rutgers has agreed to present our ninth short course next June.

Clayton W. Dodge
Mathematics Department
University of Maine
Orono, ME

EDITOR'S MESSAGE

March 15, 1987 is the date by which all material for the Spring, 1987 issue of the Newsletter must be in the hands of the editor, Philip Mahler, Math Department, Middlesex Community College, Springs Road, Bedford, MA 01730,
(617)-275-8910 (School), (617)-369-9499 (Home)

PRE-REGISTRATION FORM

Please complete the form below and return it with your check payable to "MAA - Northeastern Section" to:

Professor Peter R. Christopher
Mathematical Sciences Department
Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609

Your check must be received **NO LATER THAN NOVEMBER 3, 1986**.

Name _____
Last First Middle Initial

Address _____

_____

Affiliation _____

MEMBER: MAA _____ AMS _____

REGISTRATION ($5.00 for students or unemployed members)	$10.00	$_____
FRIDAY BANQUET (Prime Ribs of Beef)	$12.50	$_____
SATURDAY LUNCHEON BUFFET	$6.25	$_____
	TOTAL	$_____

NORTHEASTERN SECTION MAA
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