BIOMATHEMATICS IS EXPANDING

The Geometry of Biological Time
Arthur Winfree, Purdue University

The Geometry of Biological Time explains periodic processes in living systems and their nonliving analogues in the abstract terms of systems theory. Emphasis is on phase singularities, waves, and mutual synchronization in tissues composed of many clocklike units. Also provided are detailed descriptions of the most commonly used experimental systems, such as electrical oscillations and waves, circadian clocks, the cell division cycle, and the crystal-like regularities observed in the regeneration of severed limbs.

No theoretical background is assumed; required notions are introduced through an extensive collection of illustrations and easily understood examples.

1979/approx. 576 pp./290 Illus./Cloth $32.00
(Biomathematics, Volume 8)
ISBN 0-387-09373-7

Mathematical Population Genetics
Warren J. Ewens, University of Pennsylvania, Philadelphia

Presents the mathematical theory of population genetics with emphasis on those aspects relevant to evolutionary studies. The opening chapter provides an excellent general historical and biological background. Subsequent chapters treat deterministic and stochastic models, discrete and continuous time processes, theory concerning classical and molecular aspects, and one, two, and many loci in a concise and comprehensive manner, with ample references to additional literature.

An essential working guide for population geneticists interested in the mathematical foundations of their field and mathematicians involved in genetic evolutionary processes.

1979/approx. 330 pp./4 Illus./17 Tables/Cloth $32.00
(Biomathematics, Volume 9)

Diffusion and Ecological Problems: Mathematical Models
Akira Okubo, State University of New York, Stony Brook

The first comprehensive book on mathematical models of diffusion in an ecological context. It provides a wide variety of problems ranging from passive diffusion of substances in the environment to active dispersal of interacting animal populations. Topics covered include the basics of diffusion, diffusion of spores in the air, transmission of insect pheromones, random search models for homing animals, dynamics of organism swarming, animal movements in home range, plankton patchiness, traveling waves of dispersing populations, models for density-dependent dispersal, and diffusion-induced instability. Knowledge of basic probability and differential equations is assumed.

1979/approx. 300 pp./114 Illus./Cloth $42.90
(Biomathematics, Volume 10)

To order, write, Springer-Verlag New York Inc. Department S1949
44 Hartz Way, Secaucus, NJ 07094
Prices subject to change without notice.
Special Issue
Assistantships and Fellowships in the Mathematical Sciences 1980-1981
Current and prospective graduate students in mathematics and their advisors should be aware of employment prospects in the profession. Talented young people should not be discouraged from becoming mathematicians. Some academic positions will become available every year. In addition, there are varied career opportunities outside of the academic environment, and an increasing number of Ph.D. mathematicians are choosing such careers.

Continuing studies made under the auspices of the AMS Committee on Employment and Educational Policy indicate that, for some years to come, the number of openings for traditional academic employment in mathematics will be smaller than the rate at which Ph.D.'s in pure mathematics are currently entering the job market. However, these same studies have shown that employment prospects in mathematics improved somewhat in recent years, and there are indications that this trend will continue, particularly outside the academic world.


**COMMITTEE ON EMPLOYMENT AND EDUCATIONAL POLICY (December 1979)**

**Data Subcommittee**

Lida K. Barrett, chairman
Arthur P. Mattuck
Donald C. Rung

Wendell H. Fleming, chairman
Hans Schneider
Robert J. Thompson
William P. Ziemer

**Employment Concerns Subcommittee**

Hans Schneider
Audrey Terras
Barnet M. Weinstock, chairman

Robert J. Thompson

**Short Course Subcommittee**

Lida K. Barrett
Lincoln K. Durst

Donald j. Albers, consultant

Alan J. Goldman, chairman
Ronald L. Graham

Wendell H. Fleming, chairman
Lida K. Barrett

Cathleen S. Morawetz
Barbara L. Osofsky

Arthur P. Mattuck
Robert W. McKelvey

Hans Schneider

William P. Ziemer

**Discontinued Doctoral Programs Subcommittee**

Lida K. Barrett

William P. Ziemer

Hans Schneider

Sources of information available to mathematicians are listed. The Mathematical Sciences Employment Register, which is sponsored by the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics, has compiled this booklet.

**Seeking Employment in the Mathematical Sciences**

This booklet gives mathematicians just entering the professional field information on how to find employment best suited to their abilities and training. The role of the mathematicians in teaching, academic and industrial research, computing, and government is discussed, along with information on how to go about seeking and applying for a position.

Revised edition, 1977, 20 pages. $.50 first copy, $.10 each additional copy

Prepayment is required for all American Mathematical Society publications.

Send for the book above to: AMS, P.O. Box 1571, Annex Station, Providence, RI 02901
Experiences Getting a Job, Spring 1979

by Peter J. Welcher

In what follows I will recount some of my personal experiences in looking for employment this spring. I will also offer some comments and suggestions stemming from these experiences. The thing I would most like to emphasize is that good non-academic jobs are there, even for "pure" mathematicians. My impression is that some of the jobs in academia, particularly those for new Ph.D.'s, verge on exploitation of them based on the poor job market. Nonacademic positions are a more-than-viable alternative!

1. Case History. Initial conditions: B.A., Wesleyan University, 1974, Phi Beta Kappa, etc.; Ph.D., M.I.T., 1978, in Algebraic Topology. Computer experience, Air Force, Summer of 1974. In the spring of 1978 I applied for around 100 of the then- available academic jobs. I received precisely one offer, at Baruch College, CUNY, for a one-year job. I accepted this job, in late May of last year. This time-frame appeared to hold for most of the others at M.I.T. who did not get postdoctoral fellowships and/or top university jobs: i.e., for about fifty percent of the new Ph.D.'s there.

This past spring I was in the position of having to repeat this whole depressing experience. Letters had been sent out starting in November. In January I had an interview and immediate offer from a small college in Pennsylvania. While I appreciate their interest (and while I certainly needed a boost in morale at that time), I feel that a tenure-track job at $12,000/yr. ($12K from here on) was in part an attempt to take advantage of my uncertainties about myself and the job market by making a pre-emptively early offer, at an unacceptable salary.

In part because of that rather low salary offer, in February I decided I might as well see what industry had to offer. An acquaintance had just got a job in industry at $32K with less applied experience than I have, although being a logician was somewhat relevant. One way of looking for such a job was to have a "headhunting" company look for me, as it costs the job-seeker nothing. The company sends one's resume to its client companies, and is paid a fee of $2,000 or more by any such company with which you accept a job. One advantage of the "headhunter" is that the personnel office may actually take a look at your resume, and it will certainly get past the secretary who opens the mail. Naturally they would like any job to come through them, but also they would rather not get you too many offers, as you can only take one job. Thus you do have to know what you want, and you do have to resist sales pitches to take jobs that aren't quite what you want; e.g., I couldn't get either of two firms in Pennsylvania to believe that a Ph.D. from M.I.T. is worth $20K-plus in industry. They kept trying to tell me that the only thing I could sell myself as was as a programmer at a starting salary of $13K to $15K!

I was interviewed (March-May) by General Public Utilities, ITT Defense Communications, Raytheon, Sperry Microwave, and Teledyne-Brown Engineering, all set up through industrial recruiters. I was also put in touch with around ten companies with jobs which violated my gross constraints. These gross constraints were: (a) work interesting and definitely not just computer programming; (b) salary of at least $20K, so as to be better than an academic salary. It turned out the latter should probably have been set a little higher.

2. Results. G.P.U. was a mismatch; they wanted a B.A. or M.A. from a local school with programming experience. I.T.T. was basically programming or micro-processor programming. For the more interesting jobs (from my viewpoint) I needed EE experience or courses I didn't have. Other firms which I didn't interview with wanted this type of background, and it looks like micro-processors are being put into almost everything conceivable, making this a good growth area and potentially a good source of jobs, even, say, for M.A.'s with EE and/or micro experience. But it wasn't quite what I had decided I wanted. I wanted to stay a bit closer to mathematics.

I also sent out five resumes to companies I was particularly interested in. (I checked the AMS list of places where people had been hired in the last five years. The most recent of these lists appeared in the January 1979 issue of Employment Information in the Mathematical Sciences.) This got me an interview at MITRE. This, Sperry, Raytheon, and Teledyne-Brown Engineering (T.B.E.) were more like what I was looking for: systems analysis, mathematical modelling, systems testing, and model verification (the computer as a tool and perhaps as what was being modelled, but not as the essential aspect of the job). All the jobs were military work, but this I had fully expected.

Teledyne-Brown Engineering made an offer of a position as a systems analyst at $22.5K, and MITRE wanted a second interview, indicative of a strong interest. Sperry indicated that it was strongly interested, but decided not to make an offer; I gather they wanted at least one course in applied statistics.

This report was prepared with the encouragement of the AMS Committee on Employment and Educational Policy's subcommittee on Employment Concerns (Hans Schneider, Audrey Terras, Robert J. Thompson, and Barnet M. Weinstock, Chairman). Readers may also be interested in the Case Studies series, published under the auspices of the same subcommittee (cf. February 1978 Notices, page 115).

511
(although I'd learned some on my own). Raytheon dropped the project I was interviewed for.

T.B.E. was impressive in many ways. To the skeptic (as I was, originally) concerning Huntsville, Alabama, as a location, I can only say, go look at it; it's a fairly nice city. In the end I decided that it didn't quite add up to "yes" for me--maybe in three years, but not right now. Its offer was also overshadowed by my expectations of hearing favorably from Sperry, where the job had more potential for variety and learning since it was as part of a management R&D group, rather than on a team working on one specific project until completion. Somewhere along in here I also had an academic interview of which nothing came, and calls concerning three more.

Most importantly, I also received an excellent offer of a tenure-track position from the Naval Academy, an offer which I accepted. To complete the list, I was pretty interested in MITRE, but they said the pay would be around $21K, which wasn't all that much better than what the Naval Academy pays (particularly as the latter is a ten-month salary). So I told MITRE that I'd rather not pursue matters further at this time. Sperry, although they apparently were tempted, eventually said "no job."

3. Summary. The academic salaries I saw ranged from $12K to $18K, for a three-course teaching load, tenure-track position. Most seemed to be around $15K or $16K; this agrees pretty well with the AMS survey results. The industrial salaries I seemed to be able to get were in the $21K to $25K range. This also agrees with the AMS and M.I.T. career planning figures. It is roughly four-thirds the nine-month academic salary, and, frankly, is a little less than I'd been hoping for. Location of the company seemed to have an effect in that companies in the South and West are more eager to hire, at better pay. Companies do seem to want credentials, such as somewhat related experience, courses taken, and (as a last choice) courses taught.

4. Comments. The cyclical over-supply of engineers appears to have been counteracted by the growth of the various computer-related industries. Most of the companies I was contacted by are hiring 100-150 engineers/applied mathematicians by the end of the year, if they can find them. From conversations on the subject with some of the personnel managers I talked to, the supply (except in the North-east) is short and there is already some upward pressure on salaries. As the number of college graduates decreases with the passing of the baby boom, these trends should accelerate. Already there seems to be such a shortage that any kind of mathematician is quite acceptable in lieu of a precisely-trained engineer (who could command more pay however); we at least "speak the language." In short, salaries are darned good and likely to get better. Opportunities to move upwards exist. Top salaries are higher still (see Report on the 1977 AMS Nonacademic Salary Survey, Notices, August 1978, page 307). The possibility of working for a while and then moving back into academics with various consulting contacts/jobs may become feasible.

Concerning type of work: systems analysis, technology assessment, and math-modelling are the better-paid options, and would probably be of interest to most Ph.D. mathematicians. Some companies also hire mathematicians by specialty, e.g., I ran into one looking for a numerical analyst with some knowledge of methods in nonlinear p.d.e.'s. As far as most of these types of job are concerned, any and all experience with computers can't hurt. The ability to put one's model on a computer and the knowledge of enough statistics to test one's model are crucial. These skills should be part of the undergraduate mathematics curriculum, in my opinion. I also think any "pure" mathematician, at any school, would be well-advised to take two to four courses in computers/statistics at the graduate level, even if this prolongs his graduate study to a total of five years. Perhaps requiring this study of the graduate student, would relieve some of the pressure not to spend the time on it. There would be the added benefit of many more mathematicians who could converse outside their area of specialization with users of mathematics (or even teach eventual users). Summer work in an applied area is also a good way to keep one's options open, even if one fully intends to pursue an academic career. It's easy to be so idealistic that one forgets that it's convenient to be able to change one's mind occasionally.

Being positive also seems to be important. You can't say, "I'm only here since I probably won't get a good academic job." I told interviewers the simple truth, that I was trying to find out what was available, and that I was hoping for pay better than the academic community could provide.
ASSISTANTSHIPS AND FELLOWSHIPS

In the Mathematical Sciences in 1980–1981

The list of assistantships and fellowships at universities includes 414 departments of mathematics, applied mathematics, statistics, computer science, and related mathematical disciplines; these represent 306 colleges and universities. Institutions in the United States are listed alphabetically by state, followed by Canadian institutions.

Under the DEGREES AWARDED column the following terms have been used:

- Bachelor's by inst. .......... Number of bachelor's degrees awarded by the institution
- Bachelor's by dept. .......... Number of bachelor's degrees awarded by the department
- Master's by dept. .......... Number of Master's degrees awarded by the department

Abbreviations used

- A&NT .................. Algebra and Number Theory
- G&T .................... Geometry and Topology
- L ....................... Logic
- A&FA .................. Analysis and Functional Analysis
- P ...................... Probability
- S ........................ Statistics
- OR ..................... Operations Research
- CS ........................ Computer Science
- AM ........................ Applied Mathematics
- ME ........................ Mathematics Education

Under the SERVICE REQUIRED column, hours per week section:

- c ........................ Contact hours

For Graduate Study at Universities

<table>
<thead>
<tr>
<th>TYPE of financial assistance</th>
<th>STIPEND</th>
<th>TUTION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>type of service</td>
</tr>
</tbody>
</table>

**ALABAMA**

**Alabama A & M University, Normal 35762**

DEPARTMENT OF MATHEMATICS

Jerry R. Shipman, Chairman

- Teaching Assistantship (1) 3500 9 40/cr. 20 Teaching

**Auburn University, Auburn 36830**

DEPARTMENT OF INDUSTRIAL ENGINEERING

V. E. Unger, Head

- Teaching Assistantship (8) 3150-4500 9
- Research Assistantship (10) 4260-6120 12

**DEPARTMENT OF MATHEMATICS**

Ben Fitzpatrick, Jr., Head

- Teaching Assistantship (10) 4680-7200 12 880 5-10 Teaching
- Teaching Assistantship (21) 3510-5850 9 600 5-10 Teaching

**University of Alabama in Huntsville 35807**

DEPARTMENT OF MATHEMATICS

F. Lee Cook, Chairman

- Teaching Assistantship (6) 3855-4860 9

*Late applications considered if positions are still available.
University of Alabama (Tuscaloosa), University 35401

DEPARTMENT OF MANAGEMENT SCIENCE AND STATISTICS
Badrig M. Kurkjian, Chairman
Teaching Assistantship (7) 3700-4700 9

DEPARTMENT OF MATHEMATICS
C. Hobby, Chairman
Fellowship (2) 3700-4700 9
Teaching Assistantship (28) 3700-4700 9

University of South Alabama, Mobile 36688

DEPARTMENT OF MATHEMATICS
Richard Vinson, Chairman
Research Assistantship (3) 2700 9

University of Arizona, Tucson 85721

DEPARTMENT OF MATHEMATICS
Theodore Laetsch, Head
Fellowship (1) 5000 9
Teaching Assistantship (35) 4200-5000 9

ARIZONA

Arizona State University, Tempe 85281

DEPARTMENT OF MATHEMATICS
Harvey A. Smith, Chair
Teaching Assistantship (42) 4300-5000 9

Northern Arizona University, Flagstaff 86011

DEPARTMENT OF MATHEMATICS
Richard D. Meyer, Chairman
Teaching Assistantship (4) 3000-3200 9

THE UNIVERSITY OF ARIZONA
DEPARTMENT OF MATHEMATICS

The Department of Mathematics invites applications from outstanding students for a $5000 graduate fellowship and for teaching assistantships. The Department of Mathematics has graduate programs in mathematics leading to the Master of Arts, Master of Science, and Doctor of Philosophy degrees. Various areas of mathematics are represented; two areas in which there is particularly strong faculty interest are algebra and applied mathematics. The University, which has approximately 30,000 students currently enrolled, offers a diversified educational and cultural scene.

For further information write to:
Graduate Committee, Department of Mathematics
Building 89 Box C, University of Arizona, Tucson, Arizona 85721

Equal Opportunity/Affirmative Action Employer.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>of financial assistance</td>
<td>amount</td>
<td>9 or 12 months</td>
<td>if not included</td>
<td>in stipend (dollars)</td>
</tr>
</tbody>
</table>

**ARKANSAS**

**Arkansas State University, State University 72467**

DEPARTMENT OF MATHEMATICS AND PHYSICS

J. L. Linnstaedter, Chairman

- Teaching Assistantship (6) 2975 9
- *In-state $460; out-of-state tuition waived. Increase in tuition likely.*

**University of Arkansas, Fayetteville 72701**

DEPARTMENT OF MATHEMATICS AND STATISTICS

Bernard L. Madison, Chairman

- Teaching Assistantship (50) 4400–4600 9

**University of Arkansas for Medical Sciences, Little Rock 72201**

DEPARTMENT OF BIOMETRY

Robert C. Walls, Head

- Research Assistantship (2) 4000–4200 12 460 20

**CALIFORNIA**

**California Institute of Technology, Pasadena 91125**

APPLIED MATHEMATICS

G. B. Whitham, Executive Officer

- Fellowship (5) 4200 9
- Teaching Assistantship (16) 3280–4920 9
- Research Assistantship (4) 2176–3910 9

*Tuition scholarship accompanies these awards.*

**MATHEMATICS**

W. A. J. Luxemburg, Executive Officer

- Fellowship (4) 4200–5200 12
- Teaching Assistantship (16) 4110–4920 9
- Research Assistantship (2) 3910 9

**California Polytechnic State University, San Luis Obispo 93407**

DEPARTMENT OF MATHEMATICS

C. J. Hanks, Head

- Graduate Assistantship (2) 2043 9
- Part-time Assistant Instructorship (8) 2493 9

*Registration fees $68–$76. Nonresidents, $40 per quarter unit, maximum of $600.*

**California State Polytechnic University, Pomona 91768**

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

John R. Fisher, Acting Chair

- Teaching Assistantship (4–8) 3588–7516 9 72/qtr. 3–6

**California State University, Chico 95929**

DEPARTMENT OF COMPUTER SCIENCE

Orlando Madrigal, Chairman

- Teaching Assistantship (15) 250/mo., 350/mo. 9 120 10
- Research Assistantship (6) 250/mo., 450/mo. 12 120 15

---

**DEGREES AWARDED**

**Academic year 1978–1979**

**Bachelor's by inst.** 800

**Bachelor's by dept.** 12

**Master's by dept.** 6

**Applications due:**

**Faculty 19; Published 8**

**Bachelor's by inst.** 1790

**Bachelor's by dept.** 17

**Master's by dept.** 14

**Ph.D. (1976–1979 incl.)** G&T 1, Total: 1

**Applications due:**

**Faculty 27; Published 15**

**Bachelor's by inst.** 194

**Bachelor's by dept.** 9

**Master's by dept.** 1

**Ph.D. (1976–1979 incl.)** A&NT 5, L 1, A&FA 1, Total: 7

**Applications due:**

**Faculty 47; Published 7**

**Bachelor's by inst.** 2870

**Bachelor's by dept.** 35

**Master's by dept.** 3

**Applications due:**

**Faculty 41; Published 13**

**Bachelor's by inst.** 1971

**Bachelor's by dept.** 16

**Master's by dept.** 5

**Applications due:**

**Faculty 16**

**Bachelor's by inst.** 2000

**Bachelor's by dept.** 100

**Master's by dept.** 8
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AMOUNT</td>
<td>9 or 12</td>
<td>IN DOLLARS</td>
<td>9/12 MONTHS</td>
</tr>
<tr>
<td></td>
<td>IN STIPEND DOLLARS</td>
<td>PER WEEK</td>
<td>TYPE</td>
<td>ACADEMIC YEAR</td>
</tr>
<tr>
<td>California State University, Fresno</td>
<td></td>
<td></td>
<td></td>
<td>1978-1979</td>
</tr>
<tr>
<td>93740</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N.C. Harbertson, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (4-6)</td>
<td>2490-4185</td>
<td>9</td>
<td>* 12-20</td>
<td>Bachelor's by inst. 2844</td>
</tr>
<tr>
<td>*$1100 nonresident.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California State University, Fullerton</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92634</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.S. Shultz, Acting Chair</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (4-6)</td>
<td>4000-6000</td>
<td>9</td>
<td>93-108 4-6 Teaching</td>
<td>Bachelor's by inst. 9002</td>
</tr>
<tr>
<td>California State University, Hayward</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94542</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Statistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dean Fearn, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (4)</td>
<td>1800-3600</td>
<td>9</td>
<td>65/qtr. 10-20 Teaching, grading</td>
<td></td>
</tr>
<tr>
<td>California State University, Long Beach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90840</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthur Gittleman, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (25)</td>
<td>4987</td>
<td>9</td>
<td></td>
<td>Bachelor's by inst. 4153</td>
</tr>
<tr>
<td>California State University, Los Angeles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90032</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics and Computer Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donald I. Kiel, Chair</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>4433-7276</td>
<td>12</td>
<td>70/qtr. 4-6 Teaching</td>
<td></td>
</tr>
<tr>
<td>California State University, Northridge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91330</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tung-Po Lin, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>4800-5370</td>
<td>10</td>
<td>100 6 Teaching 20 Paper grading, tutoring</td>
<td></td>
</tr>
<tr>
<td>California State University, Sacramento</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95819</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics and Statistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wallace A. Elderbeek, Chair</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (4-6)</td>
<td>4987, 44</td>
<td>10</td>
<td>6 Teaching 20 Lab work</td>
<td></td>
</tr>
<tr>
<td>Graduate Assistantship (2-4)</td>
<td>4130</td>
<td>10</td>
<td></td>
<td>Master's by dept. 5</td>
</tr>
<tr>
<td>*At least 6 weeks prior to beginning of semester.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Claremont Graduate School, Claremont</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91711</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robert James, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (6)</td>
<td>1500-2500</td>
<td>9</td>
<td>Waived</td>
<td></td>
</tr>
<tr>
<td>Tuition Waiver (4)</td>
<td>9</td>
<td>9</td>
<td>Waived</td>
<td></td>
</tr>
<tr>
<td>Clinic Team Leader (8)</td>
<td>5000</td>
<td>9</td>
<td>155/unit</td>
<td></td>
</tr>
</tbody>
</table>

**CLAREMONT GRADUATE SCHOOL**

The Ph.D. program allows specialization in applied mathematics, functional analysis, applied probability, topology, and other areas. The M.A. programs in applied mathematics, scientific computing, and statistics/operations research are designed to provide training and experience on which one can base a career. Practical experience is an important part of each program and is accomplished through the Mathematics Clinic, which provides work on substantial problems from industry. For students interested in industrial employment, this experience has proved to be far more relevant than that of a teaching assistant. Our alumni with Clinic experience have obtained excellent positions. An article, “An Innovative Approach to Realism within an Academic Environment” by Jerome Spanier (Amer. Math Monthly, Dec. 1976), describes this real-world component of applied mathematics training in Claremont.

A substantial number of tuition waivers (about $3600) are available along with fellowship support, especially in the M.A. program. A low student-faculty ratio permits the faculty to provide close attention to the particular needs and progress of each student. Resources include a very good library and computer facilities. Claremont has a desert climate, but is 20 miles from ski slopes and 40 miles from the beach.

For information write to: Mathematics Department, Admissions Committee
Claremont Graduate School, Claremont, California 91711
Loyola Marymount University, Los Angeles 90045

DEPARTMENT OF MATHEMATICS
Warren Wright, Chairman

Scholarship (2) 500 91/cr.hr.

San Diego State University, San Diego 92182

DEPARTMENT OF MATHEMATICAL SCIENCES
R. L. Van de Wetering, Chairman

Teaching Assistantship (20) 4986-5456 9 86 6 Teaching

San Francisco State University, San Francisco 94132

DEPARTMENT OF MATHEMATICS
James T. Smith, Chairman

Graduate Assistantship (4) 928, 25-3717 9 103/sem., 5-20 Tutoring

San Jose State University, San Jose 95192

DEPARTMENT OF MATHEMATICS
John Mitchem, Chairman

Teaching Fellowship (16-18) 2988-5976 9 107/sem.* 3-6 Teaching

Stanford University, Stanford 94305

DEPARTMENT OF MATHEMATICS
Hans Samelson, Chairman

Graduate Assistantship (40)* 3400-3900 9

DEPARTMENT OF OPERATIONS RESEARCH
Arthur F. Veit, Jr., Chairman

Fellowship (7) 3000 9 10-20 Teaching

Research Assistantship (25-30) 3000-4200 9 10-20 Research

University of California, Berkeley 94720

DEPARTMENT OF MATHEMATICS
S. Kobayashi, Chairman

Fellowship (15) 790, 50-6390, 50 263, 50-1063, 50/qtr.

Research Assistantship (30) 1741-4860 9 16 Teaching

*New students: 12/1/79; continuing students 2/1/80.

THE UNIVERSITY OF CALIFORNIA, BERKELEY
DEPARTMENT OF MATHEMATICS

At least one tenure track faculty position anticipated, pending budgetary approval, effective Fall 1980 at the assistant professor or associate professor level, with the exact rank to be determined by qualifications, in the areas of algebra, analysis, applied mathematics, foundations, or geometry. Applicants should have demonstrated potential in research and teaching.

Send by January 15, 1980, curriculum vitae, list of publications, a few selected reprints or preprints, and the names of three referees to:

Professor Robin Hartshorne — Vice Chairman for Faculty Appointments
Department of Mathematics, University of California, Berkeley
Berkeley, California 94720

The University of California is an Affirmative Action Employer.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP IN SCIENCE AND MATH EDUCATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robert Karplus, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (4)</td>
<td>5000</td>
<td>9</td>
<td>Faculty 3; Published 2</td>
<td>Bachelor's by inst., 4805</td>
</tr>
<tr>
<td><em>In-state: $900; out-of-state: $2900.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF STATISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>David R. Brillinger, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (7)</td>
<td>3200**</td>
<td>9</td>
<td>Faculty 25; Published 24</td>
<td>Bachelor's by inst., 4805</td>
</tr>
<tr>
<td>Teaching Assistantship (36)</td>
<td>3078**</td>
<td>9</td>
<td>Faculty 25; Published 24</td>
<td>Bachelor's by dept., 11</td>
</tr>
<tr>
<td>Research Assistantship (24)**</td>
<td>2430**</td>
<td>10</td>
<td>Faculty 25; Published 24</td>
<td>Master's by dept., 18</td>
</tr>
<tr>
<td>Scholarship #</td>
<td>790,50***</td>
<td>20</td>
<td>Teaching</td>
<td>Ph.D. (1976-1979 incl.), Total: 30</td>
</tr>
<tr>
<td>Teaching Associateship (5-7)</td>
<td>2118-2280</td>
<td>3</td>
<td>Teaching</td>
<td>Ph.D. (1976-1979 incl.), Total: 30</td>
</tr>
<tr>
<td>*Assistantships: 1/15/80; Fellowships: 12/1/79, **For 1980-81 a salary range adjustment of 7% is anticipated, ***Nonresidents subject to an additional fee of $800 per quarter; waivers (full and partial) are available, #Most research assistants hold concurrent teaching assistants appointments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>University of California, Davis 95616</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>David G. Mead, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (4)</td>
<td>3600</td>
<td>9</td>
<td>Faculty 32; Published 25</td>
<td>Bachelor's by inst., 3157</td>
</tr>
<tr>
<td>Teaching Assistantship (21)</td>
<td>6156</td>
<td>9</td>
<td>Bachelor's by dept., 17</td>
<td></td>
</tr>
<tr>
<td>Associateship (2)</td>
<td>6216</td>
<td>9</td>
<td>Master's by dept., 9</td>
<td></td>
</tr>
<tr>
<td>Community Teaching Fellowship (6)</td>
<td>6156</td>
<td>9</td>
<td>Ph.D. (1976-1979 incl.), A&amp;NT 6, G&amp;T 2, A&amp;FA 1, Total: 11</td>
<td></td>
</tr>
<tr>
<td>Remedial Teaching (6)*</td>
<td>6156</td>
<td>9</td>
<td>P 1, S 1, Total: 11</td>
<td></td>
</tr>
<tr>
<td>Reading Assignments (6)*</td>
<td>6156</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Stipend and hours vary with extent of duties.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>University of California, Irvine 92717</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>James J. Yeh, Chair</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (2)</td>
<td>6156</td>
<td>9</td>
<td>Faculty 33; Published 26</td>
<td>Bachelor's by inst., 1525</td>
</tr>
<tr>
<td>Teaching Fellowship (1)</td>
<td>6156</td>
<td>9</td>
<td>Bachelor's by dept., 24</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (20)</td>
<td>6156</td>
<td>9</td>
<td>Master's by dept., 9</td>
<td></td>
</tr>
<tr>
<td>Scholarship (3)</td>
<td>6156</td>
<td>9</td>
<td>Ph.D. (1976-1979 incl.), A&amp;NT 1, L 1, A&amp;FA 1, Total: 6</td>
<td></td>
</tr>
<tr>
<td><strong>University of California, Los Angeles 90024</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF BIOMATHEMATICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carol M. Newton, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (4)</td>
<td>3200-5000</td>
<td>12</td>
<td>Faculty 5; Published 5</td>
<td>Bachelor's by inst., 1525</td>
</tr>
<tr>
<td>Teaching Fellowship (1)</td>
<td>1756-4096</td>
<td>9</td>
<td>Bachelor's by dept., 24</td>
<td></td>
</tr>
<tr>
<td><strong>DIVISION OF BIOSTATISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. A. Affifi, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF PUBLIC HEALTH</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lawrence Ash, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (20)</td>
<td>750-3657</td>
<td>9</td>
<td>Faculty 7; Published 7</td>
<td>Ph.D. (1976-1979 incl.), Total: 12</td>
</tr>
<tr>
<td>Teaching Assistantship (30)</td>
<td>175-200 (varies)</td>
<td>9</td>
<td>Ph.D. (1976-1979 incl.), Total: 12</td>
<td></td>
</tr>
</tbody>
</table>

**UNIVERSITY OF CALIFORNIA, DAVIS**

**Graduate Programs in Mathematics**

U.C. Davis offers programs leading to Masters and Ph.D. degrees in mathematics, and the Master of Arts in teaching of mathematics. Faculty research interests include the traditional areas of pure and applied mathematics, with particular emphasis in ordinary and partial equations, biomathematics, applied mathematics, and geometry/convexity. Teaching assistantships and fellowships (to $6,156 annually) and community teaching fellowships are available for the 1980-81 academic year. The city of Davis is one of the most energy conscious and environmentally progressive in the U.S., and these concerns are reflected in a variety of interdisciplinary programs at U.C.D. For information concerning admission and financial support write: Graduate Committee Chairperson, Department of Mathematics University of California, Davis, CA 95616
DEPARTMENT OF MATHEMATICS

Applications due: 12/30/79
Bachelor's by dept. 170
Master's by dept. 20

Applications due: 2/15/80
Bachelor's by dept. 21
Master's by dept. 14

Applications due: 1/15/80
Bachelor's by dept. 41
Master's by dept. 41

DEPARTMENT OF SYSTEM SCIENCE

Applications due: 1/15/80
Faculty 17; Published 17
Ph.D. (1976-1979 incl.) 11
OR 9, CS 1, AM 21.
Total: 31

DEPARTMENT OF MATHEMATICS

Fellowship (10-15) 5000 9 Waived 4 Teaching
Ph.D. (1976-1979 incl.)
A&NT 11, L 2, A&FA 3,
P 1, S 2, AM 4, Other 2.
Total: 25

Teaching Fellowship (12) 6156-7209 9 750 4 Teaching
Teaching Assistantship (50) 6156-7209 9 750 4 Teaching
Research Assistantship (1-4) 6480-7458 12 750-3150 Research
Community Teaching Fellowship (4) 6156 9 750-3150 5 Teaching

DEPARTMENT OF SYSTEM SCIENCE

Fellowship (2) 3000-3200 9
Teaching Assistantship (5)* 684/mo. -
9 20 Teaching
Research Assistantship (6) 6.21/hr. -
7.14/hr. 12 20 Research
Nonresident Tuition Waiver (5) 2400 9

*2400 plus $750.

University of California, San Diego, La Jolla 92093

DEPARTMENT OF MATHEMATICS

Burton Rodin, Chairman

Fellowship (4) 5400-5800 9 3 or 4 Teaching
Teaching Assistantship (45) 6156 9 A&NT 3, G&T 1, L 1,
Research Assistantship (5) 6600-8100 9 or 12 A&FA 2, P 4, S 1, AM 2,
Scholarship (20) Fees and/or tuition Other 3. Total: 17

*In 1979-80 all graduate students (resident and nonresident) pay per quarter $255. Nonresident graduate students pay per quarter $800 tuition in addition to the above $255.

University of California, Los Angeles, CA 90024

Programs. The department offers the degrees of Master of Arts (M.A.), Master of Arts in Teaching (M.A.T.) and Doctor of Philosophy (Ph.D.) in Mathematics. Students have the option of working within an interdisciplinary program in applied mathematics.

Fellowships. About 10-15 fellowships are available for new graduate students. Fellows earn a tax-free stipend of $5000 and pay no tuition or fees.

Teaching assistantships. About 15-20 teaching assistantships are available for new graduate students. Teaching assistants teach four hours of class and hold three office hours each week and help grade examinations. They receive a salary of $6156-7209 (depending on experience) from which they must pay $750 in registration fees.

For additional information write to: Graduate Advisor, Department of Mathematics, University of California, Los Angeles, CA 90024.

GRADUATE MATHEMATICS AT LA JOLLA, CALIFORNIA

Programs: M.S. and Ph.D. degrees are offered in all major fields of pure mathematics, probability, statistics, combinatorics and numerical analysis. Masters Degree Program in Applied Mathematics: a special one to two year course of study in applied mathematics, statistics and computation.

Financial Aid: Regents Fellowships (approximately $415 per month + fees for 9 months). Research Assistantships (approximately $540 per month for 11 months). Teaching Assistantships (approximately $684 per month for 9 months). San Diego Fellowship (for educationally disadvantaged students; approximately $415 per month + fees for 12 months).

Department of Mathematics - UNIVERSITY OF CALIFORNIA, SAN DIEGO
La Jolla, California 92093

519
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
<th>Academic year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>in stipend (dollars)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in dollars</td>
<td>months</td>
<td>hours per week</td>
<td>type of service</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of California, Santa Barbara 93106</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 1/15/80</td>
<td>Bachelor's by inst.</td>
<td>1650</td>
<td>Bachelor's by dept.</td>
<td>15</td>
</tr>
<tr>
<td>John A. Ernest, Chairperson</td>
<td>Faculty 38; Published 38</td>
<td>Ph.D. (1976–1979 incl.)</td>
<td>A&amp;NT 8, G&amp;T 1, A&amp;FA 4,</td>
<td>Total: 13</td>
<td></td>
</tr>
<tr>
<td>Fellowship (4)</td>
<td>3200</td>
<td>9</td>
<td>2400*</td>
<td>Teaching</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (34)</td>
<td>6586</td>
<td>9</td>
<td>6</td>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (4)</td>
<td>6586</td>
<td>9</td>
<td>15</td>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Community Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (4)</td>
<td>6586</td>
<td>9</td>
<td>6</td>
<td>Teaching</td>
<td></td>
</tr>
<tr>
<td><em>For all out-of-state students.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of California, Santa Cruz 95064</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 1/15/80</td>
<td>Bachelor's by dept.</td>
<td>25</td>
<td>Master's by dept.</td>
<td>10</td>
</tr>
<tr>
<td>Gerhard Ringel, Chairman</td>
<td>Faculty 17; Published 14</td>
<td>Ph.D. (1976–1979 incl.)</td>
<td>A&amp;FA 1, AM 1, Total: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship*</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship*</td>
<td>9</td>
<td>852</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California Teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (2)*</td>
<td>9</td>
<td>852</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Number anticipated and dollar amounts not known at this time.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Southern California, Los Angeles 90007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Applications due: 4/80</td>
<td>Bachelor's by dept.</td>
<td>27</td>
<td>Master's by dept.</td>
<td>14</td>
</tr>
<tr>
<td>Ellis Horowitz, Chairman</td>
<td>Faculty 11; Published 10</td>
<td>Ph.D. (1976–1979 incl.)</td>
<td>CS 14, Total: 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>4707/sem.</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>8–12 units tuition remission.</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COLORADO**

| Colorado School of Mines, Golden 80401 |         |         |                  |                                  |               |
| DEPARTMENT OF MATHEMATICS | Applications due: 3/15/80* | Bachelor's by inst. | 270 | Bachelor's by dept. | 5 |
| Ardel J. Boes, Head      | Faculty 16; Published 10  | Bachelor's by dept. | 2640 | Master's by dept. | 18 |
| Teaching Assistantship (5) | 3400–3875 | 8–1/2   | 12               | Research                         |               |
| Research Assistantship (1) | 3400–3875 | 8–1/2   | 12               | Research                         |               |
| *Late applications will be considered.* |         |         |                  |                                  |               |
| Colorado State University, Fort Collins 80523 |         |         |                  |                                  |               |
| DEPARTMENT OF MATHEMATICS | Applications due: 3/15/80 | Bachelor's by inst. | 2640 | Bachelor's by dept. | 14 |
| Robert E. Gaines, Chairman | Faculty 34; Published 28 | Bachelor's by dept. | 2640 | Master's by dept. | 18 |
| Teaching Assistantship (35) | 4400–4800 | 9       | 190              | 16 Teaching                       |               |
| Research Assistantship (5) | 4400–4800 | 9–12    | 16–20            | Research                         |               |
| Scholarship (1)           |         |         |                  |                                  |               |
| DEPARTMENT OF STATISTICS   | Applications due: 3/15/80 | Bachelor's by inst. | 2640 | Bachelor's by dept. | 4 |
| James S. Williams, Chairman | Faculty 14; Published 14 | Bachelor's by dept. | 2640 | Master's by dept. | 7 |
| Teaching Assistantship (16) | 3870–4050 | 9       | 2000*            | 10–15                            |               |
| Research Assistantship (10) | 3870–4050 | 9       | 2000*            | 10–15                            |               |
| *Most assistantships carry a tuition supplement.* |         |         |                  |                                  |               |
| University of Colorado, Boulder 80309 |         |         |                  |                                  |               |
| DEPARTMENT OF MATHEMATICS | Applications due: 2/50 | Bachelor's by inst. | 1800 | Bachelor's by dept. | 65 |
| Daniel Stroock, Chairman   | Faculty 45; Published 31 | Bachelor's by dept. | 1800 | Master's by dept. | 8 |
| Fellowship (3)             | 3500    | 9       | 33/cr.           | Teaching                         |               |
| Teaching Assistantship (65) | 4320–5850 | 9       | 20               |                                  |               |
| *For all out-of-state students.* |         |         |                  |                                  |               |

520
University of Denver, Denver 80210

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
Stanley Gudder, Chairman

Teaching Assistantship (10) 3400 9
Scholarship (6) Waiver

Applications due: 4/1/80
Faculty 18; Published 7
Bachelor's by inst. 917
Bachelor's by dept. 29
Master's by dept. 8
Ph.D. (1976-1979 incl.) AM 1. Total: 1

University of Northern Colorado, Greeley 80631

DEPARTMENT OF MATHEMATICS
Robert L. Heiny, Chairman

Teaching Assistantship (6) 4000-4320 9
Office hrs., teaching

Applications due: 3/1/80
Faculty 12; Published 4
Bachelor's by inst. 1500
Bachelor's by dept. 30
Master's by dept. 5

DEPARTMENT OF RESEARCH AND STATISTICAL METHODOLOGY
Robert M. Lynch, Chairman

Teaching Assistantship (1) 4000-4500 9
Research Assistantship (3) 4000-4500 9

Applications due: 3/15/80
Faculty 5; Published 4
Bachelor's by inst. 1500
Master's by dept. 3
Ph.D. (1976-1979 incl.) S 10, Total: 10

CONNECTICUT

Central Connecticut State College, New Britain 06050

DIVISION OF MATHEMATICS
G. B. Miller and S. A. Bacon, Chairmen

Teaching Assistantship (1-1/2)* 1440 9 195** 6

*Each semester,
**$195 for tuition, plus $11 for student fees.

University of Connecticut, Storrs 06268

DEPARTMENT OF MATHEMATICS
Jeffrey Tollefson, Chairman

Fellowship (6) 2000-4000 9 *
Teaching Assistantship (16) 2840-4770 9 480 fees 6
Lectureship (6) 4200-4900 9 * 6-8
Summer Fellowship (4) 800-1250

Applications due: 6/15/80
Faculty 33; Published 27
Bachelor's by inst. 1487
Bachelor's by dept. 38
Master's by dept. 15

*In-state: $270 per semester; out-of-state: $615 per semester. Some additional fellowships for tuition are available. Fees are $240 per semester.

DEPARTMENT OF STATISTICS
Gottfried E. Noether, Head

Fellowship (2) 2000-2500 9 750
Teaching Fellowship (6) 3000-3500 9 5 Teaching
Teaching Assistantship (2) 3840-4770 9

Applications due: 3/15/80
Faculty 9; Published 6
Bachelor's by inst. 3071
Bachelor's by dept. 5
Master's by dept. 7
Ph.D. (1976-1979 incl.) S 2, Total: 2

UNIVERSITY OF DENVER

PROGRAMS: M.A. and M.S. in Mathematics; M.S. in Computer Science; Ph.D. in Mathematics.

A FACULTY of ~20 conducts small, individualized classes and seminars in the major areas of mathematics and computer science. Our program is flexible and adapted to the students' needs.

RESEARCH is carried out in algebra, analysis (classical, functional, numerical), probability, applied mathematics, computer science and mathematical education. Strong research groups exist in nonlinear differential equations, asymptotics, mathematical physics, inverse scattering, combinatorial computing, theory of computation.

SCIENTIFIC CONTACTS with the Denver Research Institute (on campus), federal agencies like NSF, Department of Energy, National Center for Atmospheric Research, Office of Naval Research and industrial laboratories throughout the rapidly expanding Denver metropolitan region lead to excellent career opportunities for our graduates.

APPLY TO: Department of Mathematics & Computer Science, University of Denver, Denver, Colorado 80208.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>of financial assistance</td>
<td>amount</td>
<td>9 or 12 months</td>
<td>if not included</td>
</tr>
<tr>
<td></td>
<td>(with number anticipated 1980–1981)</td>
<td>in dollars</td>
<td>in stipend (dollars)</td>
<td>per week</td>
</tr>
<tr>
<td>Yale University, New Haven 06520</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Applications due: 1/20/80</td>
<td>Faculty 15; Published 15</td>
<td>Bachelor's by inst. 1189</td>
<td></td>
</tr>
<tr>
<td>Alan J. Perlis, Chairman</td>
<td>Faculty 15; Published 15</td>
<td>15</td>
<td>Bachelor's by dept. 9</td>
<td></td>
</tr>
<tr>
<td>Fellowship (15)</td>
<td>*</td>
<td>9</td>
<td>Bachelor's by dept. 9</td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (33)</td>
<td>880</td>
<td>5</td>
<td>Master's by dept. 15</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (20)</td>
<td>325/mo.</td>
<td>12</td>
<td>Ph. D. (1976–1979 incl.) CS 15, Total: 15</td>
<td></td>
</tr>
<tr>
<td>IBM Fellowship (1)</td>
<td>325/mo.</td>
<td>12</td>
<td>Ph. D. (1976–1979 incl.) CS 15, Total: 15</td>
<td></td>
</tr>
<tr>
<td>National CSS Fellowship (1)</td>
<td>325/mo.</td>
<td>12</td>
<td>Ph. D. (1976–1979 incl.) CS 15, Total: 15</td>
<td></td>
</tr>
<tr>
<td>*Minimum is tuition up to a maximum of $2500 plus tuition,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 1/15/80</td>
<td>Faculty 28; Published 28</td>
<td>Bachelor's by inst. 1189</td>
<td></td>
</tr>
<tr>
<td>W. Felt, Chairman</td>
<td>Faculty 28; Published 28</td>
<td>28</td>
<td>Bachelor's by dept. 28</td>
<td></td>
</tr>
<tr>
<td>Full or partial fellowships available for all qualified students,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF STATISTICS</td>
<td>Applications due: 1/20/80</td>
<td>Faculty 5; Published 4</td>
<td>Bachelor's by inst. 1189</td>
<td></td>
</tr>
<tr>
<td>I. Richard Savage, Chairman</td>
<td>Faculty 5; Published 4</td>
<td>4</td>
<td>Bachelor's by dept. 7</td>
<td></td>
</tr>
<tr>
<td>Fellowship (12)</td>
<td>3000</td>
<td>9</td>
<td>Bachelor's by inst. 1189</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (4)</td>
<td>4000</td>
<td>12</td>
<td>Bachelor's by inst. 1189</td>
<td></td>
</tr>
<tr>
<td>*Most students receive a tuition fellowship from the University; tuition is more than $5000 per year,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wesleyan University, Middletown 06457</td>
<td>Applications due: 3/15/80</td>
<td>Faculty 12; Published 9</td>
<td>Bachelor's by inst. 514</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Faculty 12; Published 9</td>
<td>9</td>
<td>Bachelor's by dept. 24</td>
<td></td>
</tr>
<tr>
<td>W. L. Reddy, Chairman</td>
<td>Faculty 12; Published 9</td>
<td>9</td>
<td>Bachelor's by dept. 24</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (12)</td>
<td>3700-5550</td>
<td>9</td>
<td>Waived 10 Teaching or equivalent</td>
<td></td>
</tr>
<tr>
<td>Summer Support</td>
<td>800-1000</td>
<td>3</td>
<td>Waived 10 Teaching or equivalent</td>
<td></td>
</tr>
<tr>
<td>University of Delaware, Newark 19711</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 37; Published 34</td>
<td>Bachelor's by inst. 2577</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td>Faculty 37; Published 34</td>
<td>34</td>
<td>Bachelor's by dept. 32</td>
<td></td>
</tr>
<tr>
<td>Ivar Stakgold, Chairman</td>
<td>Faculty 37; Published 34</td>
<td>34</td>
<td>Bachelor's by dept. 32</td>
<td></td>
</tr>
<tr>
<td>Fellowship (3)</td>
<td>4720–5020</td>
<td>9</td>
<td>Master's by dept. 5</td>
<td></td>
</tr>
<tr>
<td>UNIVERSITY OF DELAWARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRADUATE WORK IN MATHEMATICS, STATISTICS AND OPERATIONS RESEARCH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programs of graduate study leading to MA, MS, and Ph.D. degrees for qualified applicants with interests in classical analysis, applied mathematics, statistics and operations research. Areas of current research of the faculty include partial differential equations, integral equations, complex analysis, optimization, combinatorics, algebra, topology, probability and applied statistics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Centrally located on the eastern seaboard, the University of Delaware affords easy access to the cultural centers of New York, Philadelphia and Washington, D.C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistantships and fellowships ($4470–$5020, with full remission of tuition) are available with additional opportunity for summer support.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For further information write to: Professor Albert E. Livingston, Department of Mathematical Sciences, University of Delaware, Newark, DE 19711</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# DISTRICT OF COLUMBIA

### American University, Washington 20016

**DEPARTMENT OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE**  
Judith Sunley, Chair  

- **Teaching Assistantship (13)**  
  - 2900*  
  - 9  

- **Special Opportunity for Minority Students (2)**  
  - 2900  
  - 9  

*Plus twenty-four hours tuition.

### Catholic University of America, Washington 20064

**DEPARTMENT OF MATHEMATICS**  
F. Sullivan, Chairman  

- **Teaching Assistantship (4)**  
  - 2400  
  - 9  

### George Washington University, Washington 20052

**DEPARTMENT OF MATHEMATICS**  
T. P. G. Liverman, Chairman  

- **Teaching Fellowship (9)**  
  - 600-900  
  - 9  

- **Teaching Assistantship (9)**  
  - 2900-2900  
  - 9  

*An individual may receive both.

### Howard University, Washington 20059

**DEPARTMENT OF MATHEMATICS**  
James A. Donaldson, Chairman  

- **Fellowship (2)**  
  - 4493  
  - 9  

- **Teaching Assistantship (10)**  
  - 4493  
  - 9  

### Florida Atlantic University, Boca Raton 33431

**DEPARTMENT OF MATHEMATICS**  
Tomas P. Schonbek, Chairman  

- **Teaching Assistantship (2)**  
  - 2400-3000  
  - 9  

*Resident: $22 per credit; nonresident: $62 per credit.

### Florida Institute of Technology, Melbourne 32901

**DEPARTMENT OF MATHEMATICAL SCIENCES**  
D. R. Clutterham, Head  

- **Teaching Assistantship (8)**  
  - 4250  
  - 15  

### Florida State University, Tallahassee 32306

**DEPARTMENT OF MATHEMATICS**  
Charles W. McArthur, Chairman  

- **Fellowship (3)**  
  - 6000  
  - 12  

- **Teaching Assistantship (25)**  
  - 4600-5200  
  - 9  

- **Research Assistantship (5)**  
  - 5900  
  - 12  

*Plus $40 per hour if out-of-state, unless waived.

### FLORIDA

### Florida Atlantic University, Boca Raton 33431

**DEPARTMENT OF MATHEMATICS**  
Tomas P. Schonbek, Chairman  

- **Teaching Assistantship (2)**  
  - 2400-3000  
  - 9  

*Resident: $22 per credit; nonresident: $62 per credit.

### Florida Institute of Technology, Melbourne 32901

**DEPARTMENT OF MATHEMATICAL SCIENCES**  
D. R. Clutterham, Head  

- **Teaching Assistantship (8)**  
  - 4250  
  - 15  

### Florida State University, Tallahassee 32306

**DEPARTMENT OF MATHEMATICS**  
Charles W. McArthur, Chairman  

- **Fellowship (3)**  
  - 6000  
  - 12  

- **Teaching Assistantship (25)**  
  - 4600-5200  
  - 9  

- **Research Assistantship (5)**  
  - 5900  
  - 12  

*Plus $40 per hour if out-of-state, unless waived.

### DEPARTMENT OF STATISTICS

Myles Hollander, Chairman  

- **Fellowship (2)**  
  - 6000  
  - 12  

- **Teaching Fellowship (8)**  
  - 6000  
  - 12  

- **Teaching Assistantship (6)**  
  - 5400-6500  
  - 12  

- **Research Assistantship (8)**  
  - 5400-6500  
  - 12  

*We offer "teaching" Fellowships that do not require teaching.
University of Central Florida, Orlando 32816

DEPARTMENT OF COMPUTER SCIENCE
Joby Milo Anthony, Chairman
Fellowship (2) 5400 9 Varies
Teaching Assistantship (10) 3600-7000 9 Varies 20
Research Assistantship (5) 3600-7000 9 Varies 20
Scholarship (2) 1200 9 Varies

DEPARTMENT OF MATHEMATICS AND STATISTICS
Joby Milo Anthony, Chairman
Teaching Assistantship (2) 1800-3600 9 22/hr., 20

University of Florida, Gainesville 32611

DEPARTMENT OF MATHEMATICS
A. R. Bednarek, Chairman
Fellowship (1) 3120 9 *
Teaching Fellowship (6)*** 1000 9 *
Teaching Assistantship (40) 4300-5520*** 9 * 6 Teaching

University of Miami, Coral Gables 33124

DEPARTMENT OF MATHEMATICS
R. L. Scheaffer, Chairman
Fellowship (2) 1000-5300 9 22/cr. hr.
Teaching Assistantship (12) 3300-6825 9 22/cr. hr. 13-20 Teaching
Research Assistantship (21) 3000-6825 9 22/cr. hr. 13-20 Research

University of North Florida, Jacksonville 32216

DEPARTMENT OF MATHEMATICAL SCIENCES
W. H. Caldwell, Chairman
Teaching Assistantship (2) 3000-4000 9 22/cr. hr. 20 Teaching

University of South Florida, Tampa 33620

DEPARTMENT OF MATHEMATICS
M. N. Manougian, Chairman
Fellowship (2) 4000 9 22/cr. hr. 8* Teaching Services (2) 4000 9 20

UNIVERSITY OF SOUTH FLORIDA

GRADUATE STUDIES IN MATHEMATICS LEADING TO M.A. AND PH.D. DEGREES

Our 30 full-time faculty members represent most areas of pure and applied mathematics and statistics. Interdisciplinary programs in Engineering, Medicine and Physics are available. Our graduate students enjoy the personal attention which comes from having fewer than two students per faculty member.

The University is located on a large modern campus at the north edge of Tampa, Florida. In addition to the warm and sunny climate, the rapidly growing Tampa Bay area provides one with many unique opportunities. The Center for Mathematical Services involves faculty and qualified students in joint projects with the businesses, industries and schools in the Tampa area.

Financial aid is available to qualified students in the form of Fellowships and Teaching Assistantships.

For further information, write to:
Dr. M. N. Manougian, Chairman, Department of Mathematics, University of South Florida, Tampa, Florida 33620
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>hours type</td>
</tr>
<tr>
<td></td>
<td>in dollars</td>
<td>months</td>
<td>in stipend (dollars)</td>
<td>per week of service</td>
</tr>
<tr>
<td>University of West Florida, Pensacola 32504</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND STATISTICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>David L. Sherry, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (3)</td>
<td>2000</td>
<td>9</td>
<td>650</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEORGIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlanta University, Atlanta 30314</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J.H. Houston, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (5)</td>
<td>3600-4200</td>
<td>12</td>
<td>12</td>
<td>Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>2500-3500</td>
<td>9</td>
<td>10</td>
<td>Teaching</td>
</tr>
<tr>
<td>Research Assistantship (2)</td>
<td>5000-6000</td>
<td>12</td>
<td>2500</td>
<td>Research</td>
</tr>
<tr>
<td>Scholarship (5)</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Atlanta University is strictly a graduate school. It has no undergraduate enrollment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Augusta College, Augusta 30904</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jerry Sue Townsend, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (1)</td>
<td>2400</td>
<td></td>
<td>5*</td>
<td>9*</td>
</tr>
<tr>
<td>Emory University, Atlanta 30322</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trevor Evans, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (14)</td>
<td>4000*</td>
<td>9</td>
<td>Waived</td>
<td>4*</td>
</tr>
<tr>
<td>*Additional support may be available in the summer quarter.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Georgia Institute of Technology, Atlanta 30332</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.A. Karlovitz, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (2)</td>
<td>5000</td>
<td></td>
<td></td>
<td>360/qtr.* 5*</td>
</tr>
<tr>
<td>Teaching Assistantship (25)</td>
<td>4500-5200</td>
<td>9</td>
<td>251/qtr. 12</td>
<td>Teaching</td>
</tr>
<tr>
<td>University of Georgia, Athens 30602</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>James C. Castrell, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>3800</td>
<td>9</td>
<td>251/qtr. 12</td>
<td>Teaching</td>
</tr>
<tr>
<td>Nonteaching Assistantship (8)</td>
<td>3500</td>
<td>9</td>
<td>251/qtr. 12</td>
<td>Grading</td>
</tr>
<tr>
<td>DEPARTMENT OF STATISTICS AND COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carl F. Kossack, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (5)</td>
<td>3800-4062</td>
<td>9</td>
<td>15/hr. 13</td>
<td>20</td>
</tr>
<tr>
<td>Consulting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (2)</td>
<td>5292-5892</td>
<td>11</td>
<td>20</td>
<td>Research</td>
</tr>
</tbody>
</table>

HAWAI

University of Hawaii at Manoa, Honolulu 96822 |          |        |                  |                 |               |
<p>| DEPARTMENT OF INFORMATION AND COMPUTER SCIENCES |          |        |                  |                 |               |
| W. Wesley Peterson, Chairman |          |        |                  |                 |               |
| Teaching Assistantship (2)  | 4512-5040| 9       | 20               | Teaching, consulting |         |
| Research Assistantship (2)  | 5292-5892| 11      | 20               | Research        |               |</p>
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
<th>Academic year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount in dollars</td>
<td></td>
<td>if not included</td>
<td>hours type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 or 12 months</td>
<td></td>
<td>in stipend (dollars)</td>
<td>per week of service</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jack Williamson, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (11)</td>
<td>4512–5040</td>
<td>9</td>
<td>40</td>
<td>3-4(^c) Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Idaho State University, Pocatello 83209</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 40; Published 37</td>
<td>Bachelor's by inst. 2766</td>
<td>1978–1979</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lyle Cook, Chairman</td>
<td>Fellowship (4) 3150</td>
<td>9</td>
<td>4-5(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (5) 3000</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Late applications considered,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Idaho, Moscow 83843</td>
<td>Applications due: 3/1/80*</td>
<td>Faculty 11; Published 5</td>
<td>Bachelor's by inst. 615</td>
<td>1978–1979</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. E. Bobisud, Chairman</td>
<td>Fellowship (2) 300/mo,</td>
<td>12*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10) 4000–4500</td>
<td>9</td>
<td></td>
<td>600</td>
<td>20 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicago State University, Chicago 60628</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 19; Published 6</td>
<td>Bachelor's by inst. 741</td>
<td>1978–1979</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robert L. Bernhardt, Chairperson</td>
<td>Fellowship (2) 300/mo,</td>
<td>12*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (12) 3240</td>
<td>9</td>
<td></td>
<td>5(^c)</td>
<td>Tutoring, computer programming</td>
<td></td>
</tr>
<tr>
<td>Graduate Assistantship (2) 2025</td>
<td>9</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Illinois University, Charleston 61920</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 28; Published 4</td>
<td>Bachelor's by inst. 1000</td>
<td>1978–1979</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alphonso J, DiPietro, Chairman</td>
<td>Teaching Assistantship (12) 3240</td>
<td>9</td>
<td>5(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Assistantship (2) 2025</td>
<td>9</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illinois Institute of Technology, Chicago 60616</td>
<td>Applications due: Open</td>
<td>Faculty 12; Published 9</td>
<td>Bachelor's by inst. 446</td>
<td>1978–1979</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P. C. Deliyannis, Chairman</td>
<td>Teaching Assistantship (6) 3000–5000</td>
<td>9</td>
<td>6-7(^c) Teaching</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DOCTOR OF ARTS IN MATHEMATICS**

The Doctor of Arts program at Idaho State University is a professional degree program designed primarily to prepare selected students for a teaching career in institutions of higher learning. Emphasis is on broad competence in mathematics rather than specialization and provides for classroom teaching experiences. The program requires a minimum of 48 semester hours distributed among a subject matter component (30-33 credits), an education component (3 credits), an interdisciplinary component (6 credits), and a teaching internship (6-9 credits).

*For more detailed information concerning requirements and financial aid write to:*

DEPARTMENT OF MATHEMATICS
Idaho State University
Pocatello, ID 83209
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>of financial assistance</td>
<td>amount in dollars</td>
<td>9 or 12 months</td>
<td>if not included in stipend (dollars)</td>
</tr>
<tr>
<td>Illinois State University, Normal 61761</td>
<td>Applications due: 4/1/80* Faculty 37; Published 19</td>
<td>Bachelor's by inst. 3356 Bachelor's by dept. 33</td>
<td>Ph.D. (1976-1979 incl.) A&amp;FA 1, Total: 1</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Albert D. Otto, Chairman</td>
<td>Teaching 4* 3600-4140 9</td>
<td>6-8* Teaching 5625-6525 9</td>
<td>*Late applications will be considered.</td>
</tr>
<tr>
<td>Teaching Assistantship (10-14)</td>
<td>2700-3150 9</td>
<td>4* Teaching</td>
<td>12</td>
<td>1980-1981</td>
</tr>
<tr>
<td>Doctoral Assistantship (5-7)</td>
<td>3600-4140 9</td>
<td>4* Teaching</td>
<td>12</td>
<td>1980-1981</td>
</tr>
<tr>
<td>Instructorship (3)</td>
<td>5625-6525 9</td>
<td>6* Teaching</td>
<td>12</td>
<td>1980-1981</td>
</tr>
<tr>
<td>Northern Illinois University, DeKalb 60115</td>
<td>Applications due: 7/1/80 Faculty 74; Published 41</td>
<td>Bachelor's by inst. 3250 Bachelor's by dept. 146</td>
<td>Master's by dept. 49</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (55)</td>
<td>3600*</td>
<td>12</td>
<td>1980-1981</td>
<td></td>
</tr>
<tr>
<td>Northwestern University, Evanston 60201</td>
<td>Applications due: 2/1/80 Faculty 28; Published 24</td>
<td>Bachelor's by inst. 1767 Bachelor's by dept. 50</td>
<td>Master's by dept. 55</td>
<td></td>
</tr>
<tr>
<td>*May be increased.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern Illinois University, DeKalb 60115</td>
<td>Applications due: 7/1/80 Faculty 74; Published 41</td>
<td>Bachelor's by inst. 3250 Bachelor's by dept. 146</td>
<td>Master's by dept. 49</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (55)</td>
<td>3600*</td>
<td>12</td>
<td>1980-1981</td>
<td></td>
</tr>
<tr>
<td>Northwestern University, Evanston 60201</td>
<td>Applications due: 2/1/80 Faculty 28; Published 24</td>
<td>Bachelor's by inst. 1767 Bachelor's by dept. 50</td>
<td>Master's by dept. 55</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MANAGERIAL ECONOMICS AND DECISION SCIENCES</td>
<td>Mark A. Satterthwaite, Chairman</td>
<td>Teaching Waived 4200*-7200 12</td>
<td>Waived 20</td>
<td>1980-1981</td>
</tr>
<tr>
<td>Roosevelt University, Chicago 60605</td>
<td>Applications due: 1/15/80 Faculty 40; Published 36</td>
<td>Bachelor's by inst. 1000 Bachelor's by dept. 18</td>
<td>Master's by dept. 3</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td>Jack Silber, Chairman</td>
<td>Teaching 12 5000 9</td>
<td>12</td>
<td>1980-1981</td>
</tr>
<tr>
<td>Scholarship (2)</td>
<td>900 9</td>
<td>Assistant to Staff (1) 1300-2000 8</td>
<td>8</td>
<td>1980-1981</td>
</tr>
</tbody>
</table>

Managerial Economics and Decision Sciences at Northwestern University

The doctoral program in Managerial Economics and Decision Sciences (MEDS), in the J. L. Kellogg Graduate School of Management at Northwestern University, is an excellent opportunity for mathematically talented students. The MEDS program offers:

- a rigorous, analytical orientation;
- a distinguished faculty drawn from the areas of mathematical microeconomics, decision and game theory, optimization, and stochastic processes;
- an outstanding record in placement of graduates in highly rated academic departments.

For further information and application forms, write:

MEDS Department Ph.D. Advisor  
J. L. Kellogg Graduate School of Management  
Northwestern University  
Evanston, Illinois 60201
Southern Illinois University, Carbondale 62901

DEPARTMENT OF MATHEMATICS
Alphonse Baartmans, Chairman

Fellowship (2) 4070-4400 11
Teaching Assistantship (14) 3798-4158 9
Teaching Assistantship (6) 4642-5082 11

*Domestic: Research Assistantship Scholarship (11) 4353-4475 9

Alphonse Baartmans, Chairman

*Late applications accepted.
**Fees of $93-$140 per semester.

University of Illinois at Chicago Circle, Chicago 60637

DEPARTMENT OF MATHEMATICS
Paul J. Sally, Jr., Chairman

Fellowship (10) 9000 9 5000 5
Teaching Fellowship (15) 9000 9 5000 5
Research Assistantship (10) 9000 9 4000 8
Scholarship (6) 4000 9 2000 8
Lecturer (25) 6000 9 2000 8

*Domestic: 2/1/80; foreign: 1/1/80.

University of Illinois at Chicago Circle, Chicago 60680

DEPARTMENT OF MATHEMATICS
Louise Hay, Acting Head

Fellowship (1) 3500 9 10
Course Assistantship (2) 3420 9 10
Research Assistantship (8) 3420-4000 9 10
Scholarship (4) 6000 9 2100 10

*Assistantship 5/1/80; Fellowship 2/1/80.

University of Illinois at Urbana-Champaign, Urbana 61801

DEPARTMENT OF MATHEMATICS
P.T. Bateman, Head

Fellowship (10) 2500 9 22
Teaching Fellowship (2) 4676-4737 9 22
Teaching Assistantship (80) 4353-4475 9 22
Research Assistantship (5) 4353-4475 9 22
Scholarship (11) 2400-5000 9 108 3-8

*Late applications will be considered.

Western Illinois University, Macomb 61455

DEPARTMENT OF MATHEMATICS
J. Burtak, Chairman

Fellowship (5) 4676-4737 9 3000 12
Teaching Fellowship (6) 1000 9 3000 12
Teaching Assistantship (6) 3150-3330 9 99 fees 10-16 Teaching

*Late applications will be considered.

COMPUTER SCIENCE AT WESTERN ILLINOIS UNIVERSITY

Western Illinois University offers a graduate program in computer science leading to the M.S. degree. Areas of emphasis in the program include computer communications networks, data bases, architecture and small-scale computer systems, and graphics. Additional coursework available also includes operating systems, programming languages, artificial intelligence, and theory of computation.

Computer facilities available include an IBM 370/155, a CDC Cyber 170-730 under NOS, and a Data General Eclipse minicomputer. In addition the Department maintains a computer lab which includes several TRS-80, PET, IMSAI and INTECOLOR systems with disks, printers, and color graphics capabilities.

Financial aid is available in the form of tuition-free graduate assistantships. For detailed information and application forms write to:
Dr. D. D. Hearn, Chairperson, QIS, Western Illinois University, Macomb, IL 61455

528
<table>
<thead>
<tr>
<th>DEPARTMENT OF COMPUTER SCIENCE</th>
<th>Applications due: 2/1/80</th>
<th>Bachelor's by inst. 5500</th>
<th>Bachelor's by dept. 28</th>
<th>Master's by dept. 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul W. Purdom, Chairman</td>
<td>Faculty 14; Published 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (3)</td>
<td>4800</td>
<td>9</td>
<td>*</td>
<td>20 Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship (30)</td>
<td>3800-4650</td>
<td>9</td>
<td>*</td>
<td>20 Teaching</td>
</tr>
<tr>
<td>Research Assistantship (6)</td>
<td>4200-5000</td>
<td>9</td>
<td>*</td>
<td>20 Research</td>
</tr>
<tr>
<td>*$118.80, per academic year.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 3/1/80</th>
<th>Bachelor's by inst. 5500</th>
<th>Bachelor's by dept. 25</th>
<th>Master's by dept. 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morton Lowengrub, Chairman</td>
<td>Faculty 46; Published 43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (110)</td>
<td>5000-5400</td>
<td>9</td>
<td>40/cr.hr.</td>
<td>15-20 Teaching, Assisting, Grading</td>
</tr>
<tr>
<td>Research Assistantship (1)</td>
<td>4000-4600</td>
<td>9</td>
<td>*</td>
<td>20 Research</td>
</tr>
</tbody>
</table>

*Usually accompanied by a full fee remission which exempts the student from paying all fees except $36 per semester for general expenses (Health Center, etc.).

**Usually accompanied by a full fee remission which exempts the student from paying all fees except for $36,50 per general expenses (Health Center, etc.).

Indiana University-Purdue University at Indianapolis 46205

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICAL SCIENCES</th>
<th>Applications due: 2/15/80</th>
<th>Bachelor's by inst. 2250</th>
<th>Bachelor's by dept. 77</th>
<th>Master's by dept. 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael Gemignani, Chairman</td>
<td>Faculty 27; Published 25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (2)</td>
<td>3500-4000</td>
<td>9</td>
<td>20</td>
<td>Teaching</td>
</tr>
<tr>
<td>Research Assistantship (6)</td>
<td>4500-5000</td>
<td>9</td>
<td>20</td>
<td>Research</td>
</tr>
</tbody>
</table>

Purdue University, West Lafayette 47907

<table>
<thead>
<tr>
<th>DEPARTMENT OF COMPUTER SCIENCES*</th>
<th>Applications due: 2/1/80</th>
<th>Bachelor's by inst. 4604</th>
<th>Bachelor's by dept. 74</th>
<th>Master's by dept. 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter J. Denning, Head</td>
<td>Faculty 23; Published 22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship**</td>
<td>4500</td>
<td>12</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (30)</td>
<td>4100-4300</td>
<td>10</td>
<td>***</td>
<td>Ph.D. (1976-1979 incl.)</td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>4100-4300</td>
<td>10</td>
<td>***</td>
<td>CS 16, Total: 16</td>
</tr>
<tr>
<td>Minority Fellowship**</td>
<td>3600</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Employment may be outside the Department of Computer Science. Only first year appointments listed.

**Number not known at this time.

***$379 per semester and $39.50 per summer.

DEPARTMENT OF INDUSTRIAL ENGINEERING

<table>
<thead>
<tr>
<th>Applications due: 3/15/80</th>
<th>Bachelor's by inst. 4604</th>
<th>Bachelor's by dept. 83</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilbur L. Miller, Jr., Head</td>
<td>Faculty 26; Published 26</td>
<td></td>
</tr>
<tr>
<td>Fellowship (2)</td>
<td>3900-6400</td>
<td>12</td>
</tr>
<tr>
<td>Teaching Assistantship (4)</td>
<td>4100-4700</td>
<td>12</td>
</tr>
<tr>
<td>Research Assistantship (50)</td>
<td>4920-5640</td>
<td>12</td>
</tr>
<tr>
<td>Full-Time Research (1-2)</td>
<td>9840-11280</td>
<td>12</td>
</tr>
</tbody>
</table>

DEPARTMENT OF MATHEMATICS

<table>
<thead>
<tr>
<th>Applications due:*</th>
<th>Bachelor's by inst. 4604</th>
<th>Bachelor's by dept. 74</th>
<th>Master's by dept. 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.D. Berkovitz, Chairman</td>
<td>Faculty 68; Published 46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (3)</td>
<td>3600-4800</td>
<td>12</td>
<td>70/sem.</td>
</tr>
<tr>
<td>Teaching Assistantship (120)</td>
<td>4100-4700</td>
<td>12</td>
<td>70/sem.</td>
</tr>
<tr>
<td>Research Assistantship (4)</td>
<td>3600</td>
<td>12</td>
<td>70/sem.</td>
</tr>
<tr>
<td>Black Fellowship (3)</td>
<td>3600-4200</td>
<td>12</td>
<td>70/sem.</td>
</tr>
</tbody>
</table>

*Assistantship: 4/15/80; Fellowship: 2/1/80.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF STATISTICS</td>
<td>Applications due: 5/1/80</td>
<td>Bachelor's by inst., 4604</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shanti S. Gupta, Head</td>
<td>Faculty 20; Published 15</td>
<td>Bachelor's by dept., 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td></td>
<td>Master's by dept., 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (30)</td>
<td>4320</td>
<td></td>
<td>Ph, D. (1976-1979 incl.,)</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (7)</td>
<td>4300-4900</td>
<td>75</td>
<td>P, S, 12, Total: 15</td>
<td></td>
</tr>
<tr>
<td>University of Notre Dame, Notre Dame 46556</td>
<td>75</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 2/15/80</td>
<td>Bachelor's by inst., 1603</td>
<td></td>
<td></td>
</tr>
<tr>
<td>John E. Derwent, Chairman</td>
<td>Faculty 35; Published 26</td>
<td>Bachelor's by dept., 18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (35)</td>
<td>3800-4800</td>
<td>0-4</td>
<td>Master's by dept., 8</td>
<td></td>
</tr>
<tr>
<td>Drake University, Des Moines 50311</td>
<td></td>
<td>Ph, D. (1976-1979 incl.,)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</td>
<td>Applications due: 3/1/80*</td>
<td>Bachelor's by inst., 930</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wayne Woodworth, Chairman</td>
<td>Faculty 10; Published 4</td>
<td>Bachelor's by dept., 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>2300-2700</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iowa State University, Ames 50011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF AEROSPACE ENGINEERING</td>
<td>Applications due: 1/1/80</td>
<td>Bachelor's by inst., 3484</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R. F. Brodsky, Head</td>
<td>Faculty 13; Published 11</td>
<td>Bachelor's by dept., 26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>3600-4500</td>
<td>250/qtr, 20</td>
<td>Master's by dept, 6</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>380/mo.-475/mo, 9-12</td>
<td>250/qtr, 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Faculty 12; Published 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R. M. Stewart, Chairman</td>
<td></td>
<td>Ph, D. (1976-1979 incl.,)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>4275</td>
<td>9</td>
<td>AM 2, Total: 2</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>5100-5450</td>
<td>475</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 3/1/80</td>
<td>Bachelor's by inst., 3484</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W. E. Barnes, Head</td>
<td>Faculty 60; Published 44</td>
<td>Bachelor's by dept., 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (36)</td>
<td>4800-5200</td>
<td>159/qtr, 5-6</td>
<td>Master's by dept., 5</td>
<td></td>
</tr>
<tr>
<td>Pace (10)*</td>
<td>159/qtr, 12</td>
<td>Ph, D. (1976-1979 incl.,)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CS 15, Total: 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Iowa, Iowa City 52242</td>
<td></td>
<td>A&amp;FA 4, P 1, Total: 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Applications due: 3/31/80</td>
<td>Bachelor's by inst., 2682</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ted Sjoerdsma, Chairman</td>
<td>Faculty 31; Published 31</td>
<td>Bachelor's by dept., 35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (12)</td>
<td>5800</td>
<td>9</td>
<td>Master's by dept., 15</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (6)</td>
<td>5800</td>
<td>9</td>
<td>Ph, D. (1976-1979 incl.,)</td>
<td></td>
</tr>
<tr>
<td>Teaching–Research Fellowship (1)</td>
<td>5800</td>
<td>9</td>
<td>CS 6, Total: 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 2/1/80</td>
<td>Bachelor's by inst., 2682</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robert H. Oehmke, Chairman</td>
<td>Faculty 32</td>
<td>Bachelor's by dept., 18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (35)</td>
<td>5300-5800</td>
<td>475*</td>
<td>Master's by dept., 5</td>
<td></td>
</tr>
<tr>
<td>*Late applications accepted.</td>
<td>9 or more hours.</td>
<td>Ph, D. (1976-1979 incl.,)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A&amp;NT 5, G&amp;T 1, A&amp;FA 9,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AM 4, Total: 19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

530
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>Academic year</td>
</tr>
<tr>
<td></td>
<td>in dollars</td>
<td>months</td>
<td>in stipend (dollars)</td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF STATISTICS</strong></td>
<td>Applications due: 3/1/80</td>
<td>Faculty 12; Published 10</td>
<td>Bachelor's by inst. 2682</td>
<td></td>
</tr>
<tr>
<td>Robert V. Hogg, Chairman</td>
<td>5000-6000</td>
<td>9</td>
<td>6 Teaching</td>
<td>Bachelor's by dept. 18*</td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept. 29</td>
</tr>
<tr>
<td>Teaching Assistantship (20)</td>
<td>5400-6200</td>
<td>9</td>
<td>1000</td>
<td>Teaching</td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>5400-6200</td>
<td>9</td>
<td>1000</td>
<td>Research</td>
</tr>
<tr>
<td>Scholarship (20)</td>
<td>150-250</td>
<td>9</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>*Joint undergraduate program with Mathematics, **$475 for 9 or more semester hours.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**University of Northern Iowa, Cedar Falls 50613**

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 3/1/80</th>
<th>Faculty 21; Published 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Duncan, Head</td>
<td>Bachelor's by inst. 1400</td>
<td></td>
</tr>
<tr>
<td>Graduate Assistantship (3)</td>
<td>2750</td>
<td>9</td>
</tr>
</tbody>
</table>

**KANSAS**

**Emporia Kansas State University, Emporia 66801**

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 3/1/80</th>
<th>Faculty 9; Published 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>John M. Burger, Chairman</td>
<td>Bachelor's by inst. 722</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (1)</td>
<td>2500-3750</td>
<td>9</td>
</tr>
</tbody>
</table>

**Fort Hays Kansas State University, Hays 67601**

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 3/1/80</th>
<th>Faculty 11; Published 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Beougher, Chairman</td>
<td>Bachelor's by inst. 419</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (1)</td>
<td>2100</td>
<td>9</td>
</tr>
</tbody>
</table>

*Assistantship: 3/1/80; Fellowship: 2/15/80 for first consideration. **All graduate students are eligible for these, including teaching assistants.

**University of Kansas, Lawrence 66045**

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due:*</th>
<th>Faculty 49; Published 33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles J. Himmelberg, Chairman</td>
<td>Master's by dept. 5</td>
<td></td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td>5300-5600</td>
<td>9</td>
</tr>
<tr>
<td>Teaching Assistantship (45)</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Scholarship (5)**</td>
<td>Tuition</td>
<td>9</td>
</tr>
</tbody>
</table>

*Assistantship: 3/1/80; Fellowship: 2/15/80 for first consideration. **All graduate students are eligible for these, including teaching assistants.

**Wichita State University, Wichita 67208**

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 3/1/80</th>
<th>Faculty 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>John J. Hutchinson, Chairman</td>
<td>Bachelor's by inst. 1800</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (12)</td>
<td>3600</td>
<td>9</td>
</tr>
</tbody>
</table>

---

**DEGREES AWARDED**

<table>
<thead>
<tr>
<th>Academic year</th>
<th>Bachelor's by inst.</th>
<th>Bachelor's by dept.</th>
<th>Master's by dept.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978-1979</td>
<td>2682</td>
<td>18*</td>
<td>29</td>
</tr>
<tr>
<td>1979-1980</td>
<td>1400</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>1981-1982</td>
<td>419</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>1982-1983</td>
<td>2452</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1983-1984</td>
<td>2452</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1984-1985</td>
<td>11</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>1985-1986</td>
<td>690</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>1986-1987</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1987-1988</td>
<td>1800</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

---

531
Twenty years ago, the Department of Mathematics had strength in certain areas of analysis. Today, after gradual development and with the aid of a National Science Foundation Center of Excellence grant, the Department has outstanding faculty in the areas of algebra, analysis, topology, geometry, differential equations, numerical analysis, and optimization. About one-third of the fifty full-time faculty work in some area of applied mathematics. Since 1973, six faculty members have been awarded Alfred P. Sloan Foundation Fellowships.

Ph.D. work is offered in the above areas. Students can be sure of individual guidance by experts in a chosen area. There are four masters degrees available: a traditional M.A.; Master of Science and Master of Operational Research in preparation for industrial employment; and Master of Arts in Teaching for teachers of secondary school mathematics.

Teaching assistantship stipends range between $5500 and $6500. A few non-service fellowships with similar stipends are available for outstanding candidates.
### LOUISIANA

**LOUISIANA STATE UNIVERSITY**

The Mathematics Department offers several degree programs:

1. A traditional plan of doctoral studies in pure mathematics. Our faculty is qualified to direct Ph.D. students in a variety of areas of algebra, analysis, and topology, including combinatorics, probability and numerical analysis.

2. An alternative plan of doctoral studies conducted with the help of the Computer Science department, culminating with a dissertation in computer-related or other applied mathematics.

3. A variety of master’s programs, including a Master of Science in mathematics, possibly with a minor in computer science, and a Master of Natural Sciences degree, an interdisciplinary program in which the mathematics department participates.

Teaching assistantships, which should pay at least $5250 in 1980-81, are available.

*For information write to:*  
Professor Sceven H. Weintraub, Director of Graduate Studies, Department of Mathematics  
Louisiana State University, Baton Rouge, Louisiana 70803.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>of financial assistance</td>
<td>amount</td>
<td>9 or 12 months</td>
<td>if not included in stipend (dollars)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in dollars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tulane University, New Orleans 70118</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Fellowship (10)</td>
<td>3400-3800</td>
<td>8</td>
<td>Waived</td>
</tr>
<tr>
<td>J.A. Goldstein, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of New Orleans, New Orleans 70122</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Teaching Assistantship (9)</td>
<td>4500-5000</td>
<td>9</td>
<td>55</td>
</tr>
<tr>
<td>Adam J. Hulin, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Southwestern Louisiana, Lafayette 70504</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND STATISTICS</td>
<td>Fellowship (1)</td>
<td>5000</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Duane Blumberg, Chairman</td>
<td>Teaching Assistantship (15)</td>
<td>3000-5000</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scholarship (6)</td>
<td>1000*</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Instructorship (3)</td>
<td>6000-12000</td>
<td>9</td>
<td>400-900</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Maine at Orono 04469</td>
<td>Fellowship (2)</td>
<td>3240</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Gary Haggard, Chairman</td>
<td>Teaching Assistantship (10)</td>
<td>3150</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MAINE**

**TULANE UNIVERSITY**


GRADUATE STUDENTS: Primarily Ph.D. students, with teaching responsibilities of three hours per week. (The Department also participates in interdisciplinary Master's Degree Programs in Applied Mathematics and in Statistics. For information on these programs, write to the Department of Mathematics, Tulane University.)

FACILITIES: In the same space as graduate student and faculty offices, we have an outstanding library and a computing facility equipped with graphic terminals accessing the central Tulane Computer Laboratory. The atmosphere encourages informal, intense cooperation between graduate students and faculty. Tulane is located in cosmopolitan New Orleans. For detailed information, write for the brochure *Mathematics at Tulane*. 

534
MARYLAND

Johns Hopkins University, Baltimore 21218
DEPARTMENT OF MATHEMATICS
J.A. Shalika, Chairman
Teaching Assistantship (16) 3100 9

DEPARTMENT OF MATHEMATICAL SCIENCE
William H. Huggins, Chairman
Teaching Fellowship (20) Varies 9 4500

University of Maryland, Baltimore County, Baltimore 21228
DEPARTMENT OF MATHEMATICS
Yen-Mow Lynn, Chairman
Teaching Assistantship (10) 4400-5400 9
Research Assistantship (2) 4400-5400 9

UNIVERSITY OF MARYLAND BALTIMORE COUNTY

Graduate Study in Applied Mathematics Leading to M.S. and Ph.D. Degrees


TEACHING ASSISTANTSHIPS: $4400—$5400 with Remission of Fees

APPLY TO:
Chairman, Graduate Committee
Department of Mathematics
UNIVERSITY OF MARYLAND BALTIMORE COUNTY
Baltimore, Maryland 21228

PH.D. in MATHEMATICS
UNIVERSITY OF MARYLAND, COLLEGE PARK

Outstanding programs are available in many areas of modern Mathematics. The department is well-represented in most areas of Analysis, Topology, Geometry, Number Theory, Logic, Differential Equations, Numerical Analysis and Statistics. Theses directed by first-rate faculty, several of whom are recent recipients of Sloan and Guggenheim Foundation Fellowship awards. Every year is designated as a "Special Year" in a different area; distinguished visitors are in residence for both short and long periods during the year. Recent Ph.D.s have obtained academic jobs at prestige U.S. Universities, as well as at various government and industry institutions both in and outside of the D.C. area. In addition to numerous teaching assistantships, several fellowships will be awarded to outstanding applicants. The latter have a tax-free stipend of $5000 plus remission of tuition fees. For further info, write: Chairman, Graduate Committee, Department of Mathematics, University of Maryland, College Park, MD 20742.
**University of Maryland, College Park 20742**

DEPARTMENT OF MATHEMATICS

William E. Kirwan, Chairman

Fellowship (3) 5000 10 Remitted
Teaching Assistantship (120) 4500-5500 10 *

*10 credit hours remitted,

Applications due: 4/1/80  Bachelor’s by inst.  5297
Faculty 91; Published 71  Bachelor’s by dept.  40
Ph.D., (1976-1979 incl.)  Master’s by dept.  7
A&NT S, G&T 2, L 1,
A&FA S, P 1, S 4, CS 1,
AM 4. Total: 24

**Boston College, Chestnut Hill 02167**

DEPARTMENT OF MATHEMATICS

R.R. Carroll, Chairman

Teaching Fellowship (10) 3200 9 
Scholarship (1) 9

Applications due: 2/15/80  Bachelor’s by inst.  2111
Faculty 22  Bachelor’s by dept.  35
Master’s by dept.  4

Ph.D., (1976-1979 incl.)
A&NT S, S 3, CS 1, AM 3.
Total: 10

**Boston University, Boston 02215**

DEPARTMENT OF MATHEMATICS

Dennis D. Berkey, Chairman

Fellowship 4000 9
Teaching Fellowship (20) 4000 9 12
Research Assistantship (4) 4000-5000 9 varies

Applications due: 6/15/80  Bachelor’s by inst.  931
Faculty 30; Published 25  Bachelor’s by dept.  24
Master’s by dept.  10

Ph.D., (1976-1979 incl.)
A&NT S, S 3, CS 1, AM 3.
Total: 10

**Brandeis University, Waltham 02154**

DEPARTMENT OF MATHEMATICS

E.H. Brown, Jr., Chairman

Fellowship

Applications due: 2/15/80  Bachelor’s by inst.  2111
Faculty 22  Bachelor’s by dept.  35
Master’s by dept.  4

Ph.D., (1976-1979 incl.)
A&NT S, S 3, CS 1, AM 3.
Total: 10

**Harvard University, Cambridge 02138**

DEPARTMENT OF STATISTICS

Peter J. Huber, Chairman

Fellowship (4) 3600* 9
Teaching Fellowship (12) 1040-1260** 5
Research Assistantship (5) ***

*Plus tuition,
***Not yet set.

Applications due: 1/1/80  Bachelor’s by inst.  1469
Faculty 4; Published 1  Bachelor’s by dept.  1
Master’s by dept.  6
Ph.D., (1976-1979 incl.)
S 2. Total: 2

**UNIVERSITY OF MARYLAND, COLLEGE PARK**

**GRADUATE STUDIES IN APPLIED MATHEMATICS**

The Interdisciplinary Applied Mathematics Program is sponsored by thirteen departments including Mathematics, Statistics, Physics and Astronomy, Computer Science, the Units of the College of Engineering, Meteorology, and the College of Business and Management. The program involves eighty-five faculty members, and at present about ninety graduate students are enrolled. The M.A. and Ph.D. degrees are offered. Courses of study are flexible and combine Mathematics with areas of application. Students are assigned individual study advisory committees. Teaching assistantships are available through the Department of Mathematics, research assistantships are available through other participating departments.

For Information Write:

Director, Applied Mathematics Program
University of Maryland
College Park, Maryland 20742

536
Massachusetts Institute of Technology, Cambridge 02139

DEPARTMENT OF MATHEMATICS
Daniel J. Kleitman, Chairman

<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND amount</th>
<th>9 or 12 months</th>
<th>TUTION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship (20)</td>
<td>$3150-4500</td>
<td>9</td>
<td>*</td>
<td></td>
<td>Bachelor's by inst. 1187</td>
</tr>
<tr>
<td>Teaching Assistantship (47)</td>
<td>$4662</td>
<td>9</td>
<td>*</td>
<td>6</td>
<td>Master's by dept. 60</td>
</tr>
<tr>
<td>Research Assistantship (9)</td>
<td>$9324</td>
<td>9</td>
<td>*</td>
<td>16</td>
<td>Ph.D. (1976-1979 incl.)</td>
</tr>
<tr>
<td>Scholarship (1)</td>
<td>$5000</td>
<td>9</td>
<td></td>
<td>16</td>
<td>A&amp;NT 9, G&amp;T 18, L 6, A&amp;FA 8, P 3, S 1, OR 1, AM 9, Other 14, Total: 69</td>
</tr>
</tbody>
</table>

*Scholarship.

Northeastern University, Boston 02115

DEPARTMENT OF MATHEMATICS
M. Gilmore, Chairman

<table>
<thead>
<tr>
<th>Type</th>
<th>Stipend (dollars)</th>
<th>9 or 12 months</th>
<th>Tuition (dollars)</th>
<th>Service Required</th>
<th>Degrees Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Assistantship (31)</td>
<td>3750-4000</td>
<td>9</td>
<td>*</td>
<td>4-8</td>
<td>Bachelor's by inst. 3262</td>
</tr>
<tr>
<td>Tuitionship (7)</td>
<td>Tuition only</td>
<td></td>
<td></td>
<td>6-8</td>
<td>Bachelor's by dept. 30</td>
</tr>
</tbody>
</table>

*3 hours teaching plus 3 conference hours.

University of Lowell, Lowell 01854

DEPARTMENT OF MATHEMATICS
A.W. Doerr, Chairperson

<table>
<thead>
<tr>
<th>Type</th>
<th>Stipend (dollars)</th>
<th>9 or 12 months</th>
<th>Tuition (dollars)</th>
<th>Service Required</th>
<th>Degrees Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Assistantship (4)</td>
<td>3750</td>
<td>9</td>
<td></td>
<td>6-8</td>
<td>Bachelor's by dept. 36</td>
</tr>
<tr>
<td>Research Assistantship (1)</td>
<td>3750-5000</td>
<td>9</td>
<td></td>
<td>10</td>
<td>Master's by dept. 24</td>
</tr>
</tbody>
</table>

University of Massachusetts, Amherst 01003

DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE
A. W. Doerr, Chairperson

<table>
<thead>
<tr>
<th>Type</th>
<th>Stipend (dollars)</th>
<th>9 or 12 months</th>
<th>Tuition (dollars)</th>
<th>Service Required</th>
<th>Degrees Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship (3)</td>
<td>4000</td>
<td>9</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 3940</td>
</tr>
<tr>
<td>Teaching Assistantship (15)</td>
<td>4000-4400</td>
<td>9</td>
<td></td>
<td>20</td>
<td>Bachelor's by dept. 20</td>
</tr>
<tr>
<td>Research Assistantship (32)</td>
<td>4000</td>
<td>9</td>
<td></td>
<td>20</td>
<td>Master's by dept. 20</td>
</tr>
</tbody>
</table>

DEPARTMENT OF MATHEMATICS AND STATISTICS
Edward A. Connors, Head

<table>
<thead>
<tr>
<th>Type</th>
<th>Stipend (dollars)</th>
<th>9 or 12 months</th>
<th>Tuition (dollars)</th>
<th>Service Required</th>
<th>Degrees Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Fellowship (3)</td>
<td>4000</td>
<td>9</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 3940</td>
</tr>
<tr>
<td>Teaching Assistantship (40)</td>
<td>4000-4400</td>
<td>9</td>
<td></td>
<td></td>
<td>Bachelor's by dept. 22</td>
</tr>
<tr>
<td>Research Assistantship (2)</td>
<td>4000-4500</td>
<td>9</td>
<td></td>
<td></td>
<td>Master's by dept. 5</td>
</tr>
<tr>
<td>N.S.F. (1)</td>
<td>4320</td>
<td>12</td>
<td></td>
<td></td>
<td>Ph.D. (1976-1979 incl.)</td>
</tr>
<tr>
<td>Amelia Earhart Fellowship (1)</td>
<td>5000</td>
<td>9</td>
<td></td>
<td></td>
<td>A&amp;NT 4, G&amp;T 3, A&amp;FA 4, P 1, S 1, AM 1, Other 2, Total: 13</td>
</tr>
</tbody>
</table>

*Assistantships: No deadline; Fellowship: 2/1/80.

University of Massachusetts at Amherst

GRADUATE STUDIES. M.S. and Ph.D. programs in pure and applied mathematics and statistics. Active departmental and interdisciplinary research environment.

TEACHING ASSISTANTSHIPS. 3-4 contact hours/week. Tuition waiver. Possible summer teaching. Fellowships for qualified applicants.

ATTRACTIVE LOCATION. Five college area in the beautiful Pioneer Valley. Easy access to Boston and New England ski and recreation areas. University housing available. Free local bus system. For information write:

Director of Graduate Admissions
Department of Mathematics and Statistics
University of Massachusetts
Amherst, Massachusetts 01003

537
University of Massachusetts at Boston 02125

DEPARTMENT OF MATHEMATICAL SCIENCES
Bernice Auslander, Chair
Teaching Assistantship (4)
3000-3500 9 Waived 3 C Teaching

Andrews University, Berrien Springs 49104

DEPARTMENT OF MATHEMATICAL SCIENCES
Harold T. Jones, Chairman
Teaching Assistantship (3)
3200-3400 9 2100 4 C Teaching

Central Michigan University, Mount Pleasant 48859

DEPARTMENT OF COMPUTER SCIENCE
Edward L. Lamie, Chairman
Teaching Assistantship (3)
4300-5000 9 20 * 4 C Teaching

DEPARTMENT OF MATHEMATICS
Edward H. Whitmore, Chairman
Fellowship (25)
2200-2750 9 482 6 C
Teaching Assistantship (6)
4300-5000 9

Eastern Michigan University, Ypsilanti 48197

DEPARTMENT OF MATHEMATICS
James H. Northey, Head
Graduate Assistantship (3)
3150-3350 9 20 Varies

*Resident: $38, 50 per credit; nonresident: $84 per credit.

*Tuition up to and including eight (8) semester hours per full-time appoint for the fall and winter semesters will be awarded.

Michigan State University, East Lansing 48824

DEPARTMENT OF MATHEMATICS
Joseph E. Adney, Chairman
Teaching Assistantship (120)
5400-5800 9 900 4-8 C

DEPARTMENT OF STATISTICS AND PROBABILITY
V. Mandrekar, Chairman
Teaching Assistantship (22)
574-828 9 32 6
Scholarship (1)
500 9

Michigan Technological University, Houghton 49931

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
Zane C. Motteler, Head
Teaching Assistantship (16)
3600 9 4-8 C Teaching

Graduate studies leading to the Master's Degree in Mathematics. Courses and independent study are offered in the late afternoon and early evening. Part-time students are welcome and efforts are made to schedule classes to accommodate working students as well as teachers.

In-state tuition is $40. per credit with a maximum charge of $400. per semester. Out-of-state tuition is $107.50 per credit, maximum $1,075. In addition to tuition expenses are general fees: for one to eight credits, the fees total $20., and for nine or more credits the fees total $51.50. Please note the University reserves the right to change any fees without advance notice.

Qualified applicants may be eligible for financial aid in the form of a number of teaching assistantships with remission of tuition fees.

UMass/Boston is an Affirmative Action/Equal Opportunity Employer.

For information write: University of Massachusetts at Boston, Harbor Campus, Boston, Massachusetts 02125

538
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>if not included</td>
<td>hours</td>
<td>type</td>
</tr>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td>in dollars</td>
<td>in stipend (dollars)</td>
<td>per week</td>
<td>of service</td>
</tr>
</tbody>
</table>

**Oakland University, Rochester 48063**

DEPARTMENT OF MATHEMATICAL SCIENCES
George F. Feeman, Chairperson
Teaching Assistantship (4)
Applications due: 2/15/80
Faculty 23; Published 19
Bachelor's by inst. 1112
Bachelor's by dept. 14
Master's by dept. 3

**University of Detroit, Detroit 48221**

DEPARTMENT OF MATHEMATICS
J. F. Lanahan, Chairman
Fellowship (1)
1500 12
Applications due: 4/1/80
Faculty 11; Published 3
Bachelor's by inst. 500
Bachelor's by dept. 9
Master's by dept. 33
Teaching Fellowship (4)
3200 9
Grading

**University of Michigan, Ann Arbor 48109**

DEPARTMENT OF MATHEMATICS
F.W. Gehring, Chairman
Fellowship (7–9)
3000–3320 8
Applications due: 2/1/80*
Faculty 65; Published 49
Bachelor's by inst. 4856
Bachelor's by dept. 55
Master's by dept. 46
Teaching Assistantship (79)**
5184 8
Gradepapers
3000–3320 8
Student Assistantship (35)
1012–1485 8
*Plus full tuition,
***$2286 per year for 9 hours.

**Wayne State University, Detroit 48202**

DEPARTMENT OF MATHEMATICS
B. J. Eisenstadt, Chairman
Fellowship (2)
3500 9
Applications due: 4/1/80*
Faculty 48; Published 30
Bachelor's by inst. 2893
Bachelor's by dept. 12
Master's by dept. 3
Teaching Assistantship (20)
3800–6700 9
Ph.D. (1976–1979 incl.)
A&NT 3, G&T 3, A&FA 2, S 3, Total: 6

**Western Michigan University, Kalamazoo 49008**

DEPARTMENT OF MATHEMATICS
James H. Powell, Chairperson
Fellowship (6)
4000 8
Applications due: 2/15/80
Faculty 33; Published 23
Bachelor's by inst. 3212
Bachelor's by dept. 60
Master's by dept. 24
Teaching Assistantship (20)
3600 8
Ph.D. (1976–1979 incl.)
A&FA 1, P 1, Other 4.
Spring/Summer Teaching
Assistantship (25)**
900 4
Total: 6

**Mankato State University, Mankato 56001**

DEPARTMENT OF MATHEMATICS
C. D. Alders, Chairman
Teaching (5)
2500–5000 9
Applications due: 6/1/80
Faculty 25; Published 3
Bachelor's by inst. 1000
Bachelor's by dept. 50
Master's by dept. 15

**St. Cloud State College, St. Cloud 56301**

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
Howard A. Bird, Chairperson
Teaching Assistantship (2)
3000* 9
Applications due: 3/15/80
Faculty 25; Published 3
Bachelor's by inst. 1500
Bachelor's by dept. 45
Master's by dept. 1

**MINNESOTA**

*Half-time.
**Tuition about $15.60 per quarter hour; fees about $50 per quarter.

539
University of Minnesota, Minneapolis 55455

DEPARTMENT OF BIOMETRY
Marcus O. Kjelsberg, Head

| Fellowship (3) | 3900 | 12 |
| Teaching Assistantship (5) | 5355 | 9 |
| Research Assistantship (3) | 5355 | 9 |

Applications due: 2/15/80
Faculty 15; Published 15
Bachelor's by inst. 6750
Bachelor's by dept. 5
Master's by dept. 5
Ph.D. (1976-1979 incl.) 6
Other 6; Total: 6

DEPARTMENT OF COMPUTER SCIENCE
J. B. Rosen, Head

| Fellowship (3) | 9000 | 12 |
| Teaching Fellowship (2) | 6000-7000 | 12 |
| Teaching Assistantship (10) | 6000-7000 | 9 |
| Research Assistantship (6) | 5200-6000 | 9-12 |

Applications due: 2/15/80
Faculty 77; Published 68
Bachelor's by inst. 6750
Bachelor's by dept. 36
Master's by dept. 5
Ph.D. (1976-1979 incl.) 11
A&NT 1, L 1, AM 1. Total: 13

DEPARTMENT OF MATHEMATICS
Willard Miller, Jr., Head

| Teaching Fellowship (1-6) | 6178-6678 | 9 |
| Teaching Assistantship (65) | 5355-5985 | 9 |
| Research Assistantship (1) | 5094 | 9 |

Applications due: 2/15/80
Faculty 77; Published 68
Bachelor's by inst. 6750
Bachelor's by dept. 3

SCHOOL OF STATISTICS
Seymour Geisser, Director

| Fellowship (3) | 4000 | 9 |
| Teaching Assistantship (16) | 3730 | 9 |
| Research Assistantship (6) | 3450 | 9 |
| Project Assistantship (4) | 3730 | 9 |

Applications due: 2/15/80
Faculty 77; Published 68
Bachelor's by inst. 6750
Bachelor's by dept. 3

MISSISSIPPI

Alcorn State University, Lorman 39096

DEPARTMENT OF MATHEMATICAL SCIENCES
B. W. Allen, Acting Chairman

| Teaching Assistantship (4) | 2300 | 12 |

Applications due: 7/31/80
Faculty 9; Published 1
Bachelor's by inst. 404
Bachelor's by dept. 10

Mathematics at Minnesota

The University of Minnesota offers graduate programs leading to the M.S. and Ph.D. degrees. There are seventy-six full-time faculty members. Almost all areas of mathematics are represented, with particular strengths in analysis and applied mathematics. There are extensive opportunities for interaction with various engineering, science, and social science departments. Faculty-students ratio is 3:4, there is an excellent library in the mathematics building and ample office space is provided. Fellowships and Teaching Assistantships are available. Write to:

Professor Harvey Keynes
Department of Mathematics
127 Vincent Hall
206 Church Street S.E.
University of Minnesota
Minneapolis, Minnesota 55455

540
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>of financial assistance</td>
<td>amount 9 or 12 months</td>
<td>if not included in stipend (dollars) hours type of service</td>
<td>Academic year</td>
</tr>
<tr>
<td></td>
<td>(with number anticipated 1980–1981)</td>
<td>in dollars</td>
<td>per week</td>
<td></td>
</tr>
<tr>
<td><strong>Jackson State University, Jackson 39217</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 5/1/80</td>
<td>Bachelor's by inst.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roosevelt Gentry, Head</td>
<td>Faculty 23; Published 10</td>
<td>Bachelor's by dept.</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (6)</td>
<td>2500 12</td>
<td>Master's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (1)</td>
<td>2500 12</td>
<td>6 Teaching</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (6)</td>
<td>4020 12</td>
<td>6 Teaching</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

| **Mississippi State University, Mississippi State 39762** | | | | |
| DEPARTMENT OF MATHEMATICS | Applications due: 3/1/80 | Bachelor's by inst. | |
| P.W. Spikes, Acting Head | Faculty 26; Published 6 | Bachelor's by dept. | 5 |
| Teaching Assistantship (15) | 3600–4200 9 400/sem. | Master's by dept. | |

| **University of Mississippi, University 38677** | | | | |
| DEPARTMENT OF COMPUTER SCIENCE | Applications due: 3/1/80 | Bachelor's by inst. | |
| Samuel L. DeLeeuw, Chairman | Faculty 3; Published 3 | Bachelor's by dept. | 15 |
| Teaching Assistantship (2) | 3600–4800 9 900 20 | | |
| Research Assistantship (2) | 3600–4800 9 900 20 | | |
| DEPARTMENT OF MATHEMATICS | Applications due: 4/8/0 | Bachelor's by inst. | |
| Eldon L. Miller, Chairman | Faculty 19; Published 4 | Bachelor's by dept. | 12 |
| Fellowship (2) | 9 353,50 6 Teaching | Master's by dept. | 3 |
| Teaching Assistantship (15) | 4200–4400 9 353,50 6 Teaching | Ph.D. (1976-1979 incl.) | |
| Applications due: 3/1/80 | Bachelor's by inst. | A&NT 1, A&FA 2, Other 1, Total: 4 |
| Faculty 13; Published 5 | Bachelor's by dept. | |
| Teaching Fellowship (5) | 2400–3800 9 388 20 | Master's by dept. | 8 |
| Research Assistantship (5) | 3600 9 388 20 | | |
| Applications due: 3/15/80 | Bachelor's by inst. | |
| James Caveny, Chairman | Faculty 18; Published 8 | Bachelor's by dept. | 19 |
| Teaching Assistantship (10) | 4000–4300 9 388/sem. 6 Teaching | Master's by dept. | 3 |

| **University of Southern Mississippi, Hattiesburg 39401** | | | | |
| DEPARTMENT OF COMPUTER SCIENCE | Applications due: 3/1/80 | Bachelor's by inst. | |
| Danny R. Carter, Chairman | Faculty 13; Published 5 | Bachelor's by dept. | 1937 |
| Teaching Fellowship (5) | 2400–3800 9 388 20 | Master's by dept. | 50 |
| Research Assistantship (5) | 3600 9 388 20 | | |
| DEPARTMENT OF MATHEMATICS | Applications due: 3/15/80 | Bachelor's by inst. | |
| James Caveny, Chairman | Faculty 18; Published 8 | Bachelor's by dept. | 1937 |
| Teaching Assistantship (10) | 4000–4300 9 388/sem. 6 Teaching | Master's by dept. | 3 |

| **Northeast Missouri State University, Kirksville 63501** | | | | |
| DEPARTMENT OF MATHEMATICS | Applications due: 4/15/80 | Bachelor's by inst. | |
| Dale Woods, Chairman | Faculty 13; Published 3 | Bachelor's by dept. | 911 |
| Teaching Assistantship (10) | 4000–6000 12 6 Teaching | Master's by dept. | 20 |
| Scholarship (10) | 500–3000 9 10 | | |
| Applications due: 3/31/80 | Bachelor's by inst. | |
| Raymond Freese, Chairman | Faculty 9; Published 6 | Bachelor's by dept. | 1800 |
| Teaching Assistantship (10) | 3100 9 * 6 Teaching | Master's by dept. | 7 |
| *Six hours tuition remission per semester. | | Ph.D. (1976-1979 incl.) | |
| | | G&T 3, Total: 3 | |

| **St. Louis University, St. Louis 63103** | | | | |
| DEPARTMENT OF MATHEMATICS | Applications due: 3/31/80 | Bachelor's by inst. | |
| Harold W. Hager, Chairman | Faculty 17; Published 5 | Bachelor's by dept. | 1937 |
| Teaching Assistantship (5) | 2600 9 6 | Master's by dept. | 3 |
| Applications due: 3/1/80 | Bachelor's by inst. | |
| Keith W. Schrader, Chairman | Faculty 31; Published 25 | Bachelor's by dept. | 1281 |
| Fellowship* | Faculty 31; Published 25 | Bachelor's by dept. | 22 |
| Teaching Assistantship (55) | 5100–5600 9 396/sem. 6 Teaching | Master's by dept. | 3 |
| Scholarship* | Faculty 31; Published 25 | | |
| *A limited number of these are available through university wide evaluation, and the Department has had a number of recipients. | | | |
| Application dates vary, Stipends vary from $1500 to $6000 per academic year. | | | |

MISSOURI

| **University of Missouri-Columbia 65211** | | | | |
| DEPARTMENT OF MATHEMATICS | Applications due: 3/1/80 | Bachelor's by inst. | |
| Keith W. Schrader, Chairman | Faculty 31; Published 25 | Bachelor's by dept. | 3468 |
| Fellowship* | Faculty 31; Published 25 | Bachelor's by dept. | 20 |
| Teaching Assistantship (55) | 5100–5600 9 396/sem. 6 Teaching | Master's by dept. | 7 |
| Scholarship* | Faculty 31; Published 25 | Ph.D. (1976-1979 incl.) | |
| *A limited number of these are available through university wide evaluation, and the Department has had a number of recipients. | | A&NT 1, A&FA 1, AM 1, Total: 3 |

**Academic Year 1978-1979**
<table>
<thead>
<tr>
<th>Type of Finance Assistance</th>
<th>Dep. of Statistics</th>
<th>Dep. of Mathematics</th>
<th>Dep. of Engineering Mechanics</th>
<th>Dep. of Mathematical Sciences</th>
<th>Dep. of Computer Science</th>
<th>Dep. of Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Faculty 14; Published 11</td>
<td>Faculty 14; Published 9</td>
<td>Faculty 13; Published 8</td>
<td>Faculty 30; Published 12</td>
<td>Faculty 10; Published 7</td>
<td>Faculty 23; Published 20</td>
</tr>
<tr>
<td><strong>Teaching Assistantship (6)</strong></td>
<td>5000-5600 9</td>
<td>5500 9</td>
<td>Waived 6c</td>
<td>3800-4000* 9</td>
<td>3825* 9</td>
<td>3200-4300* 9</td>
</tr>
<tr>
<td><strong>Research Assistantship (2)</strong></td>
<td>3750-4800 9</td>
<td>5500 9</td>
<td>Waived 20</td>
<td>10635* 12</td>
<td>*** 20</td>
<td>3200-4300* 9</td>
</tr>
<tr>
<td>*Half-time,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Graduate Professional Opportunity Fellowship.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Current rates; may be increased for 1980-81.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**In addition, there is also a supplement for minor dependents.**
Montana State University, Bozeman 59717

DEPARTMENT OF MATHEMATICAL SCIENCES
Kenneth Tiahrt, Head

Teaching Assistantship (30) 4000-6500 9 100/qtr, 5-10 5 12
Research Assistantship (5) 4000-6500 9 100/qtr, 12

University of Montana, Missoula 59812

DEPARTMENT OF MATHEMATICS
R. A. Solberg, Interim Chairman

Teaching Assistantship (20) 3600-6300** 9 ** 5-6 Teaching
*Including extra stipend as Editorial Assistant.
**Including extra stipend as Editorial Assistant.

Applications due: 3/1/80
Faculty 27; Published 15
Bachelor's by inst. 1543
Bachelor's by dept. 18
Master's by dept. 4
Ph.D. (1976-1979 incl.)
A&FA 2, S 3. Total: 5

Applications due: 4/1/80
Faculty 21; Published 15
Bachelor's by inst. 1233
Bachelor's by dept. 7
Master's by dept. 1
Ph.D. (1976-1979 incl.)
A&NT 1, G&T 1, A&FA 2, S 1, Other 2. Total: 7

Applications due: 5/1/80
Faculty 37
Ph.D. (1976-1979 incl.)

Applications due: 4/15/80
Faculty 20; Published 11
Ph.D. (1976-1979 incl.)

Applications due: 4/1/80
Faculty 11; Published 1

Applications due: 5/1/80
Faculty 37

Applications due: 4/15/80
Faculty 20; Published 11

This program for the advanced training of college mathematics teachers and other mathematical “generalists” has been developed with the aid of a grant from the Advanced Training Projects, NSF Division of Graduate Education. It emphasizes breadth of knowledge, skill in the communication of mathematical thought, an awareness of the influence of mathematics on modern society and intellectual life, and the development of a sense of vocation as teacher and scholar. The program provides the opportunity for both traditional and interdisciplinary thesis work and boasts of a one hundred per cent success rate in placing its graduates in positions in 4-year colleges and universities. Residents of the city of Missoula enjoy unequalled opportunities to participate in such outdoor activities as skiing, backpacking, canoeing, hunting and fishing. For details, please write for the “Ph.D. Packet” to

Chairman, Graduate Committee
Mathematics Department, University of Montana
Missoula, Montana 59812

543
University of Nevada, Las Vegas 89154

DEPARTMENT OF MATHEMATICAL SCIENCE
Sadanand Verma, Chairman

Teaching Assistantship (6) 3800-4000 9 7/hr. 6 Teaching

Applications due: 4/15/80 Faculty 16; Published 11 Bachelor's by inst. 684 Bachelor's by dept. 12 Master's by dept. 4

University of Nevada, Reno 89557

DEPARTMENT OF MATHEMATICS
R, N, Tompson, Chairman

Teaching Assistantship (4) 3800-4600 9 20 Teaching

Applications due: 3/15/80 Faculty 15; Published 5 Bachelor's by inst. 840 Bachelor's by dept. 12 Master's by dept. 1

NEW HAMPSHIRE

Dartmouth College, Hanover 03755

DEPARTMENT OF MATHEMATICS
Donald L, Kreider, Chairman

Fellowship (16) 4800 9-12 4-10 Teaching

Applications due: 3/1/80 Faculty 25; Published 9 Bachelor's by inst. 784 Bachelor's by dept. 32 Master's by dept. 3 Ph.D, (1976-1979 incl.) A&NT 2, A&FA 1, P 2, Other 2, Total: 7

UNIVERSITY OF NEVADA - LAS VEGAS

Graduate study programs for a M.S. degree are offered with courses leading to specialization in the following areas: ALGEBRA, APPLIED STATISTICS, COMPUTER SCIENCE, DIFFERENTIAL EQUATIONS, FOUNDATIONS, FUNCTIONAL & NUMERICAL ANALYSIS, OPERATIONS RESEARCH, PROBABILITY THEORY, REAL & COMPLEX VARIABLES and TOPOLOGY.

Excellent computing facilities are available for research. The Department of Mathematics, through an active faculty, offers graduate students both an unusual amount of personal attention and a lively research atmosphere. A number of invigorating research seminars in various fields are held during each academic year. Application forms for admission to the Graduate College and for Assistantship may be obtained from the Chairman, Department of Mathematics, University of Nevada, Las Vegas, Nevada 89154.

University of Nevada, Reno
University of New Hampshire, Durham 03824

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

M. Evans Munroe, Chairman

Applications due: 3/15/80
Faculty 25; Published 17
Bachelor's by inst., 1933
Bachelor's by dept., 70
Master's by dept., 18
Ph.D. (1976-1979 incl.)
A&NT 1, A&FA 1, ME 2.
Total: 4

Academic year
1978-1979

Tuition
Service Required
Degrees Awarded

TYPE
STIPEND
TUITION
SERVICE REQUIRED
DEGREES AWARDED

<table>
<thead>
<tr>
<th>of financial assistance</th>
<th>amount</th>
<th>9 or 12 months</th>
<th>if not included</th>
<th>hours per week of service</th>
<th>type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship (1)</td>
<td>4600</td>
<td>12</td>
<td>6-10</td>
<td>6</td>
<td>Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>3900-4500</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship (2)</td>
<td>Tuition</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NEW JERSEY

Fairleigh Dickinson University, Madison 07940

DEPARTMENT OF MATHEMATICS AND PHYSICS

H. Elkholy, Chairman

Applications due: 3/1/80
Faculty 5; Published 2
Bachelor's by inst., 484
Bachelor's by dept., 14

Teaching Fellowship (2) 3000 9

Gilbert Skiner, Chairman

Applications due: 4/15/80
Faculty 14; Published 7

Teaching Fellowship (6) 3000-4000 9

Montclair State College, Upper Montclair 07043

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Robert Garfunkel, Chairman

Applications due: Open
Faculty 32; Published 12
Bachelor's by inst., 1843
Bachelor's by dept., 57
Master's by dept., 24

Teaching Assistantship (7) 3000 9

Princeton University, Princeton 08544

DEPARTMENT OF MATHEMATICS

Hale F. Trotter, Chairman

Applications due: 2/15/80
Faculty 49; Published 44
Bachelor's by inst., 1007
Bachelor's by dept., 16
Master's by dept., 14
Ph.D. (1976-1979 incl.)
A&NT 8, G&T 11, L 2,
A&FA 19, P 1, CS 1.
Total: 42

Both including tuition.

Ph.D. PROGRAM IN STATISTICS

The Department of Statistics at Princeton University offers a Ph.D. program that combines theory and practice in a modern blend of statistics, data analysis, and computing. The financial support consists of:

- Teaching Assistantships $3400-4000
- Research Assistantships $3300-3800

Both including tuition.

Write for details to:
GEOFFREY S. WATSON, Director of Graduate Studies
Statistics Department, 201 Fine Hall, P.O. Box 37
Princeton University
Princeton, New Jersey 08544

University of New Hampshire

Located in the seacoast region near Boston and the ski resorts of the White Mountains, offers graduate opportunities in

MATHEMATICS (M.S. and Ph.D.), MATHEMATICS EDUCATION (Ph.D.), COMPUTER SCIENCE (M.S.)

Small classes. Personal contacts. Excellent facilities. Assistantships $3900/academic year.

M. EVANS MUNROE, CHAIRMAN • DEPARTMENT OF MATHEMATICS AND C.S., KINGSBURY HALL, DURHAM N.H. 03824

UNH IS AN AA/EO INSTITUTION

545
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF STATISTICS</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>P. Bloomfield, Chairman</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Teaching Assistantship (3)</td>
<td>3400-4000</td>
<td>10</td>
<td>20</td>
<td>Bachelor's by inst. 1007</td>
</tr>
<tr>
<td>Research Assistantship (7)</td>
<td>3300-3800</td>
<td>10</td>
<td>20</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td>Rutgers University, New Brunswick</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Daniel Gorenstein, Chairman</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Fellowship (6)</td>
<td>5000</td>
<td>9</td>
<td>Exempt</td>
<td>Bachelor's by inst. 6133</td>
</tr>
<tr>
<td>Teaching Assistantship (45)</td>
<td>5011-5512</td>
<td>9</td>
<td>Exempt</td>
<td>Teaching</td>
</tr>
<tr>
<td>Research Assistantship (15)</td>
<td>5011-5512</td>
<td>9</td>
<td>Exempt</td>
<td></td>
</tr>
<tr>
<td>Seton Hall University, South Orange</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>C. Franke, Chairperson</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>2600-2800</td>
<td>9</td>
<td>3-6</td>
<td>Teaching</td>
</tr>
<tr>
<td>Stevens Institute of Technology, Hoboken</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>DEPARTMENT OF PURE AND APPLIED MATHEMATICS</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Roger S. Pinkham, Chairman</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Fellowship (2)</td>
<td>5000</td>
<td>9</td>
<td>15</td>
<td>Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>4885-6150</td>
<td>9</td>
<td>15</td>
<td>Research</td>
</tr>
<tr>
<td>NEW MEXICO</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Eastern New Mexico University, Portales</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE AND STATISTICS</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>W.G. Calton, Director</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>4200</td>
<td>9</td>
<td>10</td>
<td>Teaching</td>
</tr>
<tr>
<td>New Mexico Highlands University, Las Vegas</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Jon A. Schlosser, Chairman</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Teaching Assistantship (3-1/2)</td>
<td>2260</td>
<td>9</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>New Mexico Institute of Mining and Technology, Socorro</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Ralph M. McGehee, Acting Chairman</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Teaching Assistantship (3)</td>
<td>4000-4200</td>
<td>9</td>
<td>Waived</td>
<td>6 Teaching</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Ralph W. Ball, Acting Chairman</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>4000-4200</td>
<td>9</td>
<td>Waived</td>
<td>5-6 Teaching</td>
</tr>
<tr>
<td>New Mexico State University, Las Cruces</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Carol L. Walker, Head</td>
<td>~</td>
<td>~</td>
<td>~</td>
<td>~</td>
</tr>
<tr>
<td>Teaching Assistantship (24)</td>
<td>4300-4500</td>
<td>9</td>
<td>27/hr</td>
<td></td>
</tr>
</tbody>
</table>
University of New Mexico, Albuquerque 87131

DEPARTMENT OF COMPUTING AND INFORMATION

SCIENCE
Donald R. Morrison, Chairman
Teaching Assistantship (3) 3850-4050 9 20 Teaching

DEPARTMENT OF MATHEMATICS AND STATISTICS
Richard J. Griego, Chairman
Teaching Assistantship (22) 3850-4050 9 Waived 5
Title IX HEW Graduate and Professional Fellowship (3)* 3900 9
*First year graduate students.

Applications due: 6/30/80
Faculty 6; Published 3
Bachelor's by inst. 1884
Bachelor's by dept. 8
Master's by dept. 8

New York

Adelphi University, Garden City 11530

DEPARTMENT OF MATHEMATICS
Donald I. Hammer, Chairman
Teaching Fellowship (1) 3800 9 * 20 Teaching
Teaching Assistantship (10) 2500-3300 9 * 20 Teaching
Scholarship (6) 9 **
Scholarship (6) 9
Computer Center Assistantship (2) 3000-3300 9 * 20 Teaching
*Full tuition waiver.
**Half tuition waiver.

Applications due: 3/1/80
Faculty 17; Published 11
Bachelor's by inst. 1471
Bachelor's by dept. 14
Master's by dept. 5
Ph.D. (1976-1979 incl.) A&FA 3, P 5, S 5, CS 1, AM 3, Total: 15

City University of New York, City College, New York 10031

DEPARTMENT OF MATHEMATICS
J. Landolfi, Chairman
Fellowship (1) 2000-4640 9 750/sem. 0-4 Teaching
Teaching Assistantship (6) 2640-5280 9 750/sem. 4-8 Teaching
Applications due: 3/1/80
Faculty 45; Published 32
Bachelor's by inst. 1900
Bachelor's by dept. 30
Master's by dept. 2

City University of New York, Graduate School, New York 10036

DEPARTMENT OF MATHEMATICS
Edgar A. Feldman, Executive Officer
Fellowship (21) 500-4500 9-12 5
Teaching Fellowship (2) 7028 9-12 6-8
Research Assistantship (7) 3529-4336 9-12 0-28
Adjunct Lectureship (20) 1080-5260 9 3-8
Applications due: 4/15/80
Faculty 23; Published 18
Ph.D. (1976-1979 incl.) A&NT 2, G&T 2, A&FA 5, P 2, AM 9, Total: 20

City University of New York, Hunter College, New York 10021

DEPARTMENT OF MATHEMATICAL SCIENCES
Thomas Jambols, Chairman
Teaching Fellowship (3) 6285-7215 9 75/cr. 5
Teaching Assistantship (10) 4160 9 75/cr. 6
Scholarship (1) 200-500 9 75/cr.
Applications due: 2/20/80
Faculty 22; Published 13
Bachelor's by inst. 1545
Bachelor's by dept. 44
Master's by dept. 3

NMSU 1980 Calendar: Spring and Summer

JAN 7–11. Frontiers of Applied Geometry, a working conference including geometric modelling and numerical analysis

JAN 14. Spring semester begins with graduate courses in numerical solutions of integral equations, mathematics of wave motion, numerical ODE's, nonlinear and dynamic programming, manifolds, modules, abelian groups, Hilbert space, topics in algebraic topology, statistics

MAR 1. Deadline for applying for graduate assistantships

AUG 10–15. Constructive Mathematics, a research conference

Direct inquiries on conferences and/or graduate programs to:

Department of Mathematical Sciences
New Mexico State University
Las Cruces, NM 88003

547
The Doctoral Program in Mathematics
of The City University of New York

is at the Graduate School and University Center Building of CUNY in mid-Manhattan, opposite the New York Public Library and Bryant Park.

Advanced students have office space and there is an excellent departmental library. The student body is small enough to facilitate close contact with the staff. Financial aid in the form of fellowships, research assistantships, lectureships is available.


For a description of courses currently offered and other information, write to the

Executive Officer in Mathematics
The Graduate School
THE CITY UNIVERSITY OF NEW YORK
33 West 42nd Street New York, New York 10036
<table>
<thead>
<tr>
<th>TYPE</th>
<th>DEGREES AWARDED</th>
<th>DEPARTMENT OF COMPUTER SCIENCE</th>
<th>Applications due: 1/15/80</th>
<th>Bachelor's by inst.</th>
<th>Academic year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTER FOR APPLIED MATHEMATICS</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 3056</td>
<td>Faculty 1; Published 13</td>
<td>1978-1979</td>
</tr>
<tr>
<td>Fellowship (7)</td>
<td></td>
<td></td>
<td></td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (13)</td>
<td></td>
<td></td>
<td>15 Teaching</td>
<td>AM 14; Total: 14</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (3)</td>
<td></td>
<td></td>
<td>15 Research</td>
<td>CS 21; Total: 21</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF OPERATIONS RESEARCH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (4)</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 3056</td>
<td>Faculty 20; Published 19</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (12)</td>
<td></td>
<td></td>
<td>15 Teaching</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (15)</td>
<td></td>
<td></td>
<td>15 Research</td>
<td>OR 36; Total: 36</td>
<td></td>
</tr>
<tr>
<td>Fordham University, New York 10458</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 1587</td>
<td>Faculty 16; Published 14</td>
<td></td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td></td>
<td></td>
<td>15 Teaching</td>
<td>Master's by dept. 15</td>
<td></td>
</tr>
<tr>
<td>Graduate Assistantship (6)</td>
<td></td>
<td></td>
<td>8 Teaching or assisting</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS EDUCATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 1450</td>
<td>Faculty 17; Published 11</td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (1)</td>
<td></td>
<td></td>
<td>27 Bachelor's by dept.</td>
<td>Master's by dept. 20</td>
<td></td>
</tr>
<tr>
<td>Scholarship (1)</td>
<td></td>
<td></td>
<td>5 Master's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York University—Courant Institute of Mathematical Sciences, New York 10012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 951</td>
<td>Faculty 14; Published 13</td>
<td></td>
</tr>
<tr>
<td>Fellowship (5)</td>
<td></td>
<td></td>
<td>27 Bachelor's by dept.</td>
<td>CS 8; Total: 8</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td></td>
<td></td>
<td>25 Master's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (20)</td>
<td></td>
<td></td>
<td>Ph.D. (1976-1979 incl.)</td>
<td>CS 8; Total: 8</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (5)</td>
<td></td>
<td></td>
<td>Bachelor's by inst. 951</td>
<td>Faculty 45; Published 45</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td></td>
<td></td>
<td>36 Bachelor's by dept.</td>
<td>CS 8; Total: 8</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (35)</td>
<td></td>
<td></td>
<td>34 Master's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York University, New York 10003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS EDUCATION</td>
<td></td>
<td></td>
<td>Master's by dept. 3</td>
<td>Faculty 4; Published 4</td>
<td></td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td></td>
<td></td>
<td>Ph.D. (1976-1979 incl.)</td>
<td>ME 12; Total: 12</td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (1)</td>
<td></td>
<td></td>
<td>20 Teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship (1)</td>
<td></td>
<td></td>
<td>9 Master's by dept.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Plus 15 credits tuition remission.
Polytechnic Institute of New York, Brooklyn 11201
DEPARTMENT OF MATHEMATICS
Harry Hochstadt, Chairman
Teaching Fellowship (10) 2500-3000 9

Rensselaer Polytechnic Institute, Troy 12181
DEPARTMENT OF MATHEMATICAL SCIENCES
R.C. DiPrima, Chairman
Teaching Assistantship (35) 4000-4800 9
Research Assistantship (6) 4000-4800 9

St. John's University, Jamaica 11439
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
Richard Morgan, Chairman
Assistantship (9) 2500-2700 9

State University College at Cortland 13045
DEPARTMENT OF MATHEMATICS
T. O'Loughlin, Chairman
Teaching Assistantship (1) 2500-3000* 9

State University College at Fredonia 14063
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
Frank R. Olson, Chairman
Teaching Assistantship (2) 2600 9

State University of New York at Albany 12222
DEPARTMENT OF MATHEMATICS AND STATISTICS
E.S. Thomas, Chairman
University Fellowship (1-2)** 5300 9 Waived
Teaching Assistantship (26) 3700-4400 9 Waived
Summer Research Assistantship (15) 500-1000 2 Waived
Research Assistantship (2-6) 4400 9 Waived

POLYTECHNIC INSTITUTE OF BROOKLYN
Graduate Study in Mathematics
LOCATION: Brooklyn Campus, and Long Island Center at Farmingdale, Long Island, New York.
DEGREES: M.S. and Ph.D.
FIELDS: Applied Mathematics, Algebra, Analysis, Probability, Statistics, etc.
AVAILABLE MINOR OPTIONS: Applied Mechanics, Aerospace Engineering, Electrophysics, Communication Theory, Automatic Control, Network Theory, Physics, etc.
FELLOWSHIPS: Teaching, Research.
Write for information to: Dean of Graduate School or Department of Mathematics
Polytechnic Institute of Brooklyn 333 Jay Street Brooklyn, New York 11201

Academic year 1978-1979
Bachelor's by Inst. 363
Bachelor's by dept. 13
Master's by dept. 10
Ph.D. (1976-1979 incl.)
A&NT 5, G&T 1, A&FA 5, P 1, Total: 12

Bachelor's by Inst. 1200
Bachelor's by dept. 21
Master's by dept. 3

Bachelor's by Inst. 772
Bachelor's by dept. 10
Master's by dept. 11

Bachelor's by Inst. 2309
Bachelor's by dept. 53
Master's by dept. 5
Ph.D. (1976-1979 incl.)
A&FA 2, Total: 2

Bachelor's by Inst. 305
Bachelor's by dept. 10
Master's by dept. 1

Bachelor's by Inst. 2300
Bachelor's by dept. 21

Bachelor's by Inst. 1200
Bachelor's by dept. 21
Master's by dept. 3

*Plus tuition.
**Resident: $1400; nonresident: $1500.
State University of New York at Binghamton 13901

DEPARTMENT OF MATHEMATICAL SCIENCES
Allen D. Ziebur, Chairman

Teaching Fellowship (10)
3700–4200 9
Teaching Assistantship (22)
3800–5100 9

Applications due: 3/1/80
Faculty 26; Published 16
Bachelor's by inst., 1458
Bachelor's by dept., 89
Master's by dept., 15

Ph. D. (1976–1979 incl.)
A&NT 1, G&T 3, S 1,
Other 1, Total: 6

State University of New York at Buffalo, Amherst 14226

DEPARTMENT OF COMPUTER SCIENCE
Anthony Ralston, Chairman

Fellowship (2)
3750–5000 9
Waived

Appointments due: 2/28/80
Faculty 11; Published 11
Bachelor's by inst., 3065
Bachelor's by dept., 45
Master's by dept., 12

Ph. D. (1976–1979 incl.)
S 3, CS 6, Total: 9

DEPARTMENT OF STATISTICS
Peter Enis, Chairman

Teaching Assistantship (6)
3500–5100 9
10–15

Applications due: 3/15/80
Faculty 8; Published 6
Bachelor's by inst., 3065
Bachelor's by dept., 15
Master's by dept., 2

Ph. D. (1976–1979 incl.)
S 2, Total: 2

State University of New York at Buffalo 14214

DEPARTMENT OF MATHEMATICS
Lewis A. Coburn, Chairman

Fellowship (3)
3600–5100 9–12

Applications due: 3/15/80
Faculty 44; Published 44
Bachelor's by inst., 3065
Bachelor's by dept., 52
Master's by dept., 12

Ph. D. (1976–1979 incl.)
A&NT 2, G&T 5, L 1,
A&FA 7, AM 4, Total: 19

STATE UNIVERSITY OF NEW YORK AT ALBANY

The Department of Mathematics and Statistics offers individualized graduate study leading to the M.A. and Ph.D. degrees.

Master of Arts studies are offered in mathematics, statistics, biostatistics, actuarial mathematics and mathematics for secondary school teaching.

Study leading to the Ph.D. is offered in many areas of mathematics, including complex analysis, functional and harmonic analysis, algebra and algebraic geometry, geometric topology, differential equations, probability and statistics.

The recently enlarged faculty in statistics provides opportunity for doctoral study which combines mathematics and theoretical statistics with applications. Examples of recent applications have included estimating the money supply, modelling to improve care of critical injuries, evaluating new cancer therapies, and measuring pollution effects on lake fish. For further information please write to:

DIRECTOR OF GRADUATE STUDIES
Department of Mathematics and Statistics, State University of New York at Albany, Albany, NY 12222

(An Equal Opportunity Employer)

STATE UNIVERSITY OF NEW YORK AT BUFFALO

SUNY/Buffalo has an active program in graduate mathematics leading to both M.A. and Ph.D. degrees.

Doctorates are offered in algebra, real and complex analysis, differential equations, applied mathematics, functional analysis, logic, number theory, and topology. Interdisciplinary work, especially in mathematical biology, is being expanded and encouraged.

Assistantship support has recently been increased to a maximum of $5,100/year (minimum $3,500). Duties involve lecturing and conducting recitation sections, as well as some paper grading. The university also offers both three year graduate fellowships at $5,000/year and one year fellowships at $3,750. Assistantships, as well as fellowships, carry full tuition waivers.

For additional information and application forms, write to:

Director of Graduate Studies—Department of Mathematics
STATE UNIVERSITY OF NEW YORK AT BUFFALO
Diefendorf Hall — Buffalo, New York 14214

551
### State University of New York at Stony Brook 11794

**DEPARTMENT OF APPLIED MATHEMATICS**

**AND STATISTICS**

Alan Tucker, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 18; Published 17</td>
<td>4000 9</td>
<td>8-16 Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 18; Published 17</td>
<td>2775-3905 9</td>
<td>8-16 Research</td>
</tr>
<tr>
<td>Work Study</td>
<td>Faculty 18; Published 17</td>
<td>3500-5000 9</td>
<td>16 Research</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF MATHEMATICS**

Irwin Kra, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 37; Published 30</td>
<td>6000 9</td>
<td>5 Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 37; Published 30</td>
<td>3700-4200 9</td>
<td>10 Teaching</td>
</tr>
<tr>
<td>Research Assistantship</td>
<td>Faculty 37; Published 30</td>
<td>2000-4200 9</td>
<td>10 Teaching, research</td>
</tr>
</tbody>
</table>

*Assistantship: 3/1/80; Fellowship: 2/1/80 for first round of offers.

---

### Syracuse University, Syracuse 13210

**DEPARTMENT OF MATHEMATICS**

Jack E. Graver, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 35; Published 23</td>
<td>4200 8.5</td>
<td>15 Research</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 35; Published 23</td>
<td>4300-5050 8.5-10</td>
<td>6 Teaching</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF MATHEMATICS**

Irwin Kra, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 18; Published 17</td>
<td>4000 9</td>
<td>15 Research</td>
</tr>
<tr>
<td>Research Assistantship</td>
<td>Faculty 18; Published 17</td>
<td>4000-4400 9</td>
<td>15 Research</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF MATHEMATICS**

Sanford L. Segal, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 24</td>
<td>1000 9</td>
<td>3-4 Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 24</td>
<td>1600-4000 9</td>
<td>10 Teaching</td>
</tr>
<tr>
<td>Scholarship</td>
<td>Faculty 24</td>
<td>5000 9</td>
<td>20</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF STATISTICS**

W.J. Hall, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 8; Published 8</td>
<td>2200-4000 9</td>
<td>12-15</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 8; Published 8</td>
<td>2000-7000 9-12</td>
<td>12-30</td>
</tr>
<tr>
<td>Tech Associateship</td>
<td>Faculty 8; Published 8</td>
<td>5000 9</td>
<td>20</td>
</tr>
</tbody>
</table>

---

### University of Rochester, Rochester 14627

**DEPARTMENT OF COMPUTER SCIENCE**

Jerome A. Feldman, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 11; Published 5</td>
<td>4200 8.5</td>
<td>15 Research</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 11; Published 5</td>
<td>4300-5050 8.5-10</td>
<td>6 Teaching</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF MATHEMATICS**

Jerome A. Feldman, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 8; Published 8</td>
<td>4000 9</td>
<td>15 Research</td>
</tr>
<tr>
<td>Research Assistantship</td>
<td>Faculty 8; Published 8</td>
<td>4000-4400 9</td>
<td>15 Research</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF MATHEMATICS**

Sanford L. Segal, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 24</td>
<td>1000 9</td>
<td>3-4 Teaching</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 24</td>
<td>1600-4000 9</td>
<td>10 Teaching</td>
</tr>
<tr>
<td>Scholarship</td>
<td>Faculty 24</td>
<td>5000 9</td>
<td>20</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF STATISTICS**

W.J. Hall, Chairman

<table>
<thead>
<tr>
<th>Assistantship</th>
<th>Type</th>
<th>Stipend</th>
<th>Tuition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship</td>
<td>Faculty 8; Published 8</td>
<td>2200-4000 9</td>
<td>12-15</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Faculty 8; Published 8</td>
<td>2000-7000 9-12</td>
<td>12-30</td>
</tr>
<tr>
<td>Tech Associateship</td>
<td>Faculty 8; Published 8</td>
<td>5000 9</td>
<td>20</td>
</tr>
</tbody>
</table>

---

### STATE UNIVERSITY OF NEW YORK AT BUFFALO

The Department of Mathematics expects to award a George William Hill/Emmy Noether Research Instructorship for 1980-81.

Applicants should have completed their Ph.D. degrees by September 1, 1980, appointment being for two years. The twelve-month stipend, beginning September 1980, is $17,200 including generous staff benefits. Teaching load will total two one-semester courses during the twelve-month period.

Upon expiration of the two-year appointment, priority consideration for a two-year appointment as assistant professor will be given and will be based upon success and potential in both research and teaching. Each applicant should prepare a summary of his or her post-high school educational background, as well as a sketch of past and projected research activity, and should request at least four mathematicians to send letters of recommendation. Application forms are available upon request, Applications and supporting letters should be sent to

Dr. William R. Zame, Chairman, Search Committee, Department of Mathematics
SUNY at Buffalo, 106 Diefendorf Hall, Buffalo, New York 14214

so as to arrive by January 15, 1980. SUNY at Buffalo is an Equal Opportunity/Affirmative Action Employer. We are interested in identifying prospective minority and woman candidates. No person in whatever relation with SUNY/Buffalo shall be subject to discrimination on the basis of race, ethnic background, national origin, religion, color, age, sex or condition of handicap.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>Academic year</td>
</tr>
<tr>
<td></td>
<td>in dollars</td>
<td>months</td>
<td>in stipend (dollars)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>hours per week</td>
<td>type</td>
<td>of service</td>
<td></td>
</tr>
</tbody>
</table>

### Appalachian State University, Boone 28608

**DEPARTMENT OF MATHEMATICAL SCIENCES**

<table>
<thead>
<tr>
<th>Mike Perry, Chairman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Assistantship (6)</td>
</tr>
<tr>
<td>Research Assistantship (2)</td>
</tr>
</tbody>
</table>

*15-20 or 4-6 contact hours.*

### Duke University, Durham 27706

**DEPARTMENT OF MATHEMATICS**

<table>
<thead>
<tr>
<th>Seth Warner, Chairman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Assistantship (6)</td>
</tr>
</tbody>
</table>

### East Carolina University, Greenville 27834

**DEPARTMENT OF MATHEMATICS**

<table>
<thead>
<tr>
<th>Robert Shock, Chairman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Fellowship (22)</td>
</tr>
<tr>
<td>Computer and Office Institutional Research (4)</td>
</tr>
</tbody>
</table>

*$520 per year, in-state; $2240 per year, out-of-state; $950 per year, special talent out-of-state.*

### North Carolina State University, Raleigh 27650

**DEPARTMENT OF MATHEMATICS**

<table>
<thead>
<tr>
<th>Walter J. Harrington, Acting Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Assistantship (50)</td>
</tr>
</tbody>
</table>

### University of North Carolina, Chapel Hill 27514

**DEPARTMENT OF BIOSTATISTICS**

<table>
<thead>
<tr>
<th>James E. Grizzle, Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellowship (32)*</td>
</tr>
<tr>
<td>Research Assistantship (21)</td>
</tr>
</tbody>
</table>

*All fellowships are for continuing students.*

---

NORTH CAROLINA

---
**CURRICULUM IN OPERATIONS RESEARCH AND SYSTEM ANALYSIS**

Walter L. Smith, Chairman

- Fellowship (3-5) 4000-4200 9 6-10 Teaching
- Teaching Assistantship (10-15) 3800-4000 9 5-10 Teaching
- Research Assistantship (6) 4000-4200 9-12 10

**University of North Carolina, Charlotte 28223**

J.P. Schell, Chairman

- Teaching Assistantship (6) 3500 9 505* 6 Teaching

*In-state tuition, Out-of-state tuition remission available.

**University of North Carolina at Greensboro 27412**

J. E. Posey, Head

- Teaching Assistantship (18) 3200 9 350 6 Teaching

**Wake Forest University, Winston-Salem 27109**

Ivey C. Gentry, Chairman

- Fellowship (4) 5000 9 3500 6 Teaching
- Teaching Assistantship (2) 6950-7150 9 3300 12
- Scholarship (4) 3300 9 3300

**Western Carolina University, Cullowhee 28723**

Charles J. Martin, Head

- Teaching Assistantship (6) 3000-4000 9 * 3-4 Teaching
- Tutoring Assistantship (2) 2500-3000 9 * 20 Tutoring

*In-state: $155 per semester; out-of-state: $1024 for semester.

**NORTH DAKOTA**

**North Dakota State University, Fargo 58102**

L. Shapiro, Chairman

- Teaching Assistantship (10) 3600-4000 9 30/qtr. 20 Teaching
- Internship (6) 3600-5000 9-12 30/qtr. 10-20 Research

**University of North Dakota, Grand Forks 58201**

Ronald Bzoch, Chairman

- Teaching Assistantship (3) 3500 9 15 Teaching

**UNIVERSITY OF NORTH CAROLINA**

The Department of Mathematics offers programs leading to the degrees Master of Arts, Master of Science, and Doctor of Philosophy. There is great flexibility in arranging the masters degree program to include course work in Operations Research and Systems Analysis, Statistics, Computer Science and other areas related to mathematical sciences. Financial assistance is available and can be obtained by writing to address below. Faculty members are active in research especially in the fields of classical analysis, algebra, combinatorics, differential geometry, dynamical systems, algebraic topology, foliation theory, algebraic geometry, and several complex variables.

Department of Mathematics
University of North Carolina at Chapel Hill
N.C. 27514

Equal Opportunity/Affirmative Action Employer
Bowling Green State University, Bowling Green 43403

DEPARTMENT OF APPLIED STATISTICS AND OPERATIONS RESEARCH
R. A. Patton, Chair
Teaching Assistantship (7) 2000-4000 9
DEPARTMENT OF COMPUTER SCIENCE
David L. Fulton, Chair
Teaching Assistantship (5) 3550 9
Research Assistantship (6) 3550 9
DEPARTMENT OF MATHEMATICS AND STATISTICS
W. L. Terwilliger, Chair
Fellowship (4) 3000 12
Teaching Fellowship (12) 4300-4700 9
Teaching Assistantship (18) 4000 9
Scholarship (3)* 3900 12

Ohio State University, Columbus 43210

DEPARTMENT OF MATHEMATICS AND STATISTICS
A. D. Pipes, Chair
Teaching Assistantship (10) 2500 9
Research Assistantship (5) 2500 9

Case Western Reserve University, Cleveland 44106

DEPARTMENT OF MATHEMATICS AND STATISTICS
Gail S. Young, Chairman
Teaching Assistantship (7) 3600* 9
Research Assistantship (1) 3600* 9

Graduate assistantships and postdoctoral research positions are available in the Department of Systems Engineering. Research projects in electric power systems security, computer control of industrial processes, large scale military systems, and water resources systems have openings as early as January 1980. Contact Professor Stephen Kahne, Department of Systems Engineering, Case Institute of Technology, Cleveland, Ohio 44106.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>Academic year</td>
</tr>
<tr>
<td></td>
<td>in dollars</td>
<td>months</td>
<td>in stipend (dollars)</td>
<td>1978–1979</td>
</tr>
<tr>
<td>TYPE</td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>Academic year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>months</td>
<td>in stipend (dollars)</td>
<td>1978–1979</td>
</tr>
<tr>
<td>CLEVELAND STATE UNIVERSITY</td>
<td>3300</td>
<td>9</td>
<td>Teaching, grading</td>
<td>Bachelor's by dept, 1200</td>
</tr>
<tr>
<td>Tuition Service Required</td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept, 6</td>
</tr>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREES AWARDED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARYLAND STATE UNIVERSITY</td>
<td>3000</td>
<td>9</td>
<td></td>
<td>Bachelor's by dept, 299</td>
</tr>
<tr>
<td>Tuition Service Required</td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept, 3</td>
</tr>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREES AWARDED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KENT STATE UNIVERSITY</td>
<td>3680–4000</td>
<td>9</td>
<td></td>
<td>Bachelor's by dept, 2807</td>
</tr>
<tr>
<td>Tuition Service Required</td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept, 4</td>
</tr>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREES AWARDED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHIO STATE UNIVERSITY</td>
<td>5100–6360</td>
<td>12</td>
<td></td>
<td>Bachelor's by dept, 26</td>
</tr>
<tr>
<td>Tuition Service Required</td>
<td></td>
<td></td>
<td>Research</td>
<td>Master's by dept, 30</td>
</tr>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREES AWARDED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FELLOWSHIPS**:
- $425 to $550 per month for 12 months, plus tuition and fees
- Application Deadline: FEBRUARY 1, 1980

**ASSISTANTSHIPS**:
- $460 to $610 tuition and fees, plus a Head Start Summer Fellowship
- Application Deadline: AUGUST 1, 1980

The OSU Math Department offers a variety of fields to study for a Ph.D. degree in mathematics. Also, OSU has a number of extensive M.S. degree programs involving theoretical, applied and/or interdisciplinary mathematics; one program combines Math with Computer and Info. Science for two M.S. degrees.

Please contact the Mathematics Department Chairman if you wish further information.

*These monthly stipends are anticipated for 1980–1981 as assistance for most mathematics graduate students. Other assistance may vary in special circumstances such as augmentation for National Science Foundation Fellowships or other fellowships.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>in dollars</td>
<td>if not included</td>
<td>hours type</td>
</tr>
<tr>
<td></td>
<td>9 or 12 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF STATISTICS</td>
<td>Jagdish Rustagi, Chairman</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 13; Published 12</td>
<td>Bachelor's by inst, 653</td>
</tr>
<tr>
<td>Fellowship (5)</td>
<td>3600</td>
<td>9</td>
<td>Teaching</td>
<td>Bachelor's by dept, 10</td>
</tr>
<tr>
<td>Teaching Assistantship (35)</td>
<td>4000–5000</td>
<td>9</td>
<td>20</td>
<td>Research</td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>4000–5000</td>
<td>9</td>
<td>20</td>
<td>Teaching</td>
</tr>
<tr>
<td>Ohio University, Athens 45701</td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 24; Published 11</td>
<td>Bachelor's by inst, 982</td>
</tr>
<tr>
<td>D. O. Norris, Chairman</td>
<td>Teaching Assistantship (20)</td>
<td>3400–4400</td>
<td>9–12</td>
<td>80 fees</td>
</tr>
<tr>
<td>University of Akron, Akron 44325</td>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 12; Published 5</td>
<td>Bachelor's by inst, 1214</td>
</tr>
<tr>
<td>William H. Beyer, Head</td>
<td>Teaching Assistantship (5)</td>
<td>3600–3900</td>
<td>6</td>
<td>Teaching</td>
</tr>
<tr>
<td>University of Dayton, Dayton 45469</td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 4/1/80*</td>
<td>Faculty 23; Published 14</td>
<td>Bachelor's by inst, 1163</td>
</tr>
<tr>
<td>John McCloskey, Chairman</td>
<td>Research Assistantship (3)</td>
<td>3600–4000</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>University of Toledo, Toledo 43606</td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 3/31/80</td>
<td>Faculty 25; Published 13</td>
<td>Bachelor's by inst, 1411</td>
</tr>
<tr>
<td>Simmie S. Blakney, Chairman</td>
<td>Teaching Assistantship (16)</td>
<td>3250–4000</td>
<td>4–6</td>
<td>Teaching</td>
</tr>
<tr>
<td>Wright State University, Dayton 45435</td>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Applications due: Open</td>
<td>Faculty 15; Published 12</td>
<td>Bachelor's by inst, 1163</td>
</tr>
<tr>
<td>Tse-yun Feng, Chairman</td>
<td>Teaching Assistantship (16)</td>
<td>3300</td>
<td>7/cr.hr.</td>
<td>20</td>
</tr>
<tr>
<td>Research Assistantship (2)</td>
<td>2600</td>
<td>7/cr.hr.</td>
<td>20</td>
<td>Research</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Edgar A. Rutter, Chairman</td>
<td>Applications due: 4/1/80*</td>
<td>Faculty 23; Published 14</td>
<td>Bachelor's by inst, 1163</td>
</tr>
<tr>
<td>Teaching Assistantship (7)</td>
<td>3600–3700</td>
<td>9</td>
<td>7/cr.hr.</td>
<td>16 Teaching**</td>
</tr>
<tr>
<td>Youngstown State University, Youngstown 44555</td>
<td>DEPARTMENT OF MATHEMATICAL AND COMPUTER SCIENCES</td>
<td>Applications due: 2/1/80*</td>
<td>Faculty 33; Published 25</td>
<td>Bachelor's by inst, 1372</td>
</tr>
<tr>
<td>Dean R. Brown, Chairman</td>
<td>Teaching Assistantship (3)</td>
<td>3000</td>
<td>25</td>
<td>Teaching</td>
</tr>
<tr>
<td>University of Oklahoma, Norman 73019</td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 3/1/80</td>
<td>Faculty 33; Published 17</td>
<td>Bachelor's by inst, 2232</td>
</tr>
<tr>
<td>Morris L. Marx, Chairman</td>
<td>Teaching Assistantship (36)</td>
<td>3800–4200</td>
<td>20,75/cr.hr.</td>
<td>6</td>
</tr>
</tbody>
</table>

*Late applications considered.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
<th>Academic year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF STATISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. Leroy Folks, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>3870–4050</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (1)</td>
<td>3870–4000</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Assistantship (2)</td>
<td>4725</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*$20.75 per credit hour, plus $33.95 in fees.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICAL SCIENCES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>William A. Coberly, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (5)</td>
<td>2950</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (1)</td>
<td>1950</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OREGON</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon State University, Corvallis 97331</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curtis R. Cook, Acting Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (15)</td>
<td>3842–4158</td>
<td></td>
<td>7/1 term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>3933–4080</td>
<td></td>
<td>7/1 term</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF STATISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lyle D. Calvin, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>3500–4000</td>
<td></td>
<td>72/term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (15)</td>
<td>3500–5000</td>
<td></td>
<td>72/term</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Portland State University, Portland 97207</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.A. Enneking, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>3402–4536</td>
<td></td>
<td>75/term</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>University of Oregon, Eugene 97403</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stephen Hedetniemi, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (9)</td>
<td>3456–4038</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (2)</td>
<td>3456</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DEPARTMENT OF математичеких наук</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fred C. Andrews, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (32)</td>
<td>4053–4566</td>
<td></td>
<td>79/term</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### UNIVERSITY OF OREGON
DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE

The Department offers a Master of Arts, a Master of Science, a Master in Computer Science Education, and several interdisciplinary master's programs. Eight full-time faculty members are actively involved in research and teaching in the areas of artificial intelligence, design and analysis of algorithms, data structures, theory of computation, compiler construction and optimization, concurrent programming, data base and computer systems.

Approximately one dozen teaching and research assistantships are available every year, which involve 20 hours per week duties on a 9-month basis. Some summer support is also available. Teaching and research assistants are also exempt from tuition.

The University is located in Eugene, between the scenic Oregon coast and the Cascade Range. This setting offers a wide range of recreational opportunities like backpacking, skiing, fishing, boating.

A 1975 study commissioned by Environmental Protection Agency rated Eugene the most livable medium-sized city in the country.

For additional information, please write or call:
Professor Stephen Hedetniemi, Head
Department of Computer and Information Science
University of Oregon, Eugene, Oregon 97403 — Telephone: (503) 686-4408
Bucknell University, Lewisburg 17837

DEPARTMENT OF MATHEMATICS

David S. Ray, Head

Applications due: 3/1/80
Faculty 19; Published 13

Fellowship (2) 900 9
Teaching Assistantship (6) 2500 9 12 Teaching
Scholarship (3) 9 or 12 months

DEGREES AWARDED

Bachelor's by inst. 638
Bachelor's by dept. 22
Master's by dept. 2

PENNSYLVANIA

Carnegie-Mellon University, Pittsburgh 15213

DEPARTMENT OF MATHEMATICS

G. J. Fix, Head

Applications due: 2/15/80
Faculty 23; Published 19

Teaching Fellowship (15) 3150-4050 9 6-8 Teaching
Research Assistantship (12) 7875-9000 9 4730 20 Research

DEPARTMENT OF STATISTICS

Joseph B. Kadane, Head

Applications due: 3/15/80
Faculty 11; Published 8

Teaching Assistantship (13) 3375* 9 10 Teaching
Scholarship (1) 4700 9
Stipend (1) 1575* 9

*Plus $4700 in tuition.

Drexel University, Philadelphia 19104

DEPARTMENT OF MATHEMATICAL SCIENCES

Loren Argabright, Head

Applications due: 3/15/80
Faculty 30; Published 22

Teaching Assistantship (25) 3500-4500 9 6* Ph.D. (1976-1979 incl.)
Research Assistantship (9) 3500-4500 9 20 A&FA 1, AM 3, Total: 4

CARNEGIE-MELLON UNIVERSITY

DEPARTMENT OF MATHEMATICS

ZEEV NEHARI INSTRUCTORSHIP

Professor Zeev Nehari was a member of this Department from 1954 to his death in 1978. The Zeev Nehari Instructorship in Mathematics, a postdoctoral position, has been instituted within this Department to honor his memory. Applicants are expected to show exceptional research promise as well as clear evidence of achievement. Each appointment is for two academic years, extendable for one further year when mutually agreeable. It carries only a small teaching requirement so that the successful candidate will be free to concentrate on research throughout the term of the Instructorship. The stipend for the academic year 1980-81 will be at least $20,000. Application forms and further information on the Instructorship and the Department can be obtained by writing to:
Chairman, Zeev Nehari Instructorship Committee, Department of Mathematics
Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213.

To ensure consideration, applications should be filed by February 1, 1980
Carnegie-Mellon University is an Equal Opportunity Employer.

DREXEL UNIVERSITY

The Department of Mathematical Sciences offers graduate programs leading to the M.S. and Ph.D. degrees. The M.S. degree is available under two basic options, Applied Mathematics and Computational Mathematics. Both programs are “professionally oriented” in the sense that they are primarily intended to prepare students for employment as practicing applied mathematicians and computer specialists in business, industry, or government. The Ph.D. program is primarily concentrated in the areas of analysis, applied mathematics, and computational mathematics. Financial aid is available through teaching and research assistantships which provide academic year stipends of from $3500 to $4500 plus a waiver of tuition and fees. Applicants may request further information from:

Graduate Recruiting Chairman
Department of Mathematical Sciences
Drexel University
Philadelphia, Pennsylvania 19104
Indiana University of Pennsylvania, Indiana 15701

DEPARTMENT OF MATHEMATICS
J. Reber, Chairman

Teaching Assistantship (5)  1325–2705  9

Lehigh University, Bethlehem 18015

DEPARTMENT OF MATHEMATICS
DIVISION OF COMPUTING AND INFORMATION SCIENCE
Gilbert Stengle, Chairman

Teaching Assistantship (26)  3800–4300  9

Pennsylvania State University, University Park 16802

DEPARTMENT OF COMPUTER SCIENCE
Jonathan Goldstine, Acting Head

Fellowship (2)  4200–5100  9
Teaching Assistantship (30)  4200–5100  9
Research Assistantship (9)  4200–5100  9
Summer Support (15)  762–1680  3

DEPARTMENT OF MATHEMATICS
Donald C. Runge, Head

Fellowship (3)  4696  9
Teaching Assistantship (25)  4572–4896  9

DEPARTMENT OF STATISTICS
T. P. Hettmansperger, Acting Head

Teaching Assistantship (17)  4320–4896  9

Shippensburg State College, Shippensburg 17257

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
James L. Sieber, Chairman

Teaching Assistantship (8)  2700  9

Temple University, Philadelphia 19122

DEPARTMENT OF MATHEMATICS
Leon Steinberg, Chairman

Teaching Assistantship (14)  4800–5000  12
Research Assistantship (4)  4800–5000  12
Scholarship (1)  9

DEPARTMENT OF STATISTICS
Boris Iglewicz, Chairman

Teaching Assistantship (2)  6000  9
Research Assistantship (12)  3600  9

University of Pennsylvania, Philadelphia 19104

DEPARTMENT OF MATHEMATICS
Chung-Tao Yang, Chairman

Fellowship (2)  4500  9
Teaching Assistantship (30)  4000  9

University of Pittsburgh, Pittsburgh 15260

DEPARTMENT OF COMPUTER SCIENCE
Orrin E. Taulbee, Chairman

Teaching Fellowship (15)  4332–6498  8–12
Teaching Assistantship (15)  4058–6087  8–12
Research Assistantship (8)  4000–6360  8–12
Scholarship (2)  4058–6087  8–12
Computer Center (4)  10000–12000  24
Industry Cooperative (4)  4800  20
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>amount</td>
<td>9 or 12 months</td>
<td>if not included in stipend (dollars)</td>
<td>hours per week type of service</td>
</tr>
<tr>
<td></td>
<td>in dollars</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND STATISTICS</td>
<td>W. E. Deskins, Chairman</td>
<td>Applications due: 3/15/80*</td>
<td>Bachelor's by inst.</td>
<td>3498</td>
</tr>
<tr>
<td></td>
<td>4300</td>
<td>8</td>
<td>Tuition 48; Published 41</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td></td>
<td>Fellowship (2)</td>
<td>4332-6498 8-12</td>
<td>6 c Teaching</td>
<td>Master's by dept.</td>
</tr>
<tr>
<td></td>
<td>Teaching Fellowship (10)</td>
<td>4058-6087 8-12</td>
<td>0 c Teaching</td>
<td>A&amp;NT 2, G&amp;T 1, A&amp;FA 1, S 1, AM 2, Total: 7</td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (10)</td>
<td>390/mo.-</td>
<td>Varies Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>530/mo.</td>
<td>8-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Robert E. Beck, Chairman</td>
<td>Applications due: 3/15/80</td>
<td>Bachelor's by inst.</td>
</tr>
<tr>
<td></td>
<td>3000</td>
<td>9</td>
<td>Faculty 12; Published 6</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td></td>
<td>Fellowship (2)</td>
<td>1500-3000</td>
<td>18 Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (40)</td>
<td>1250-3000</td>
<td>3-6 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (7)</td>
<td>1250-3000</td>
<td>9 Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Robert E. Beck, Director</td>
<td>Applications due: 3/15/80</td>
<td>Bachelor's by inst.</td>
</tr>
<tr>
<td></td>
<td>3000</td>
<td>9</td>
<td>Faculty 44; Published 8</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td></td>
<td>Fellowship (4)</td>
<td>1500-3000</td>
<td>10 Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (40)</td>
<td>3000-4000</td>
<td>9 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (7)</td>
<td>3800-4000</td>
<td>9 Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RHODE ISLAND</td>
<td>Brown University, Providence 02912</td>
<td>Applications due: 1/15/80</td>
<td>Bachelor's by inst.</td>
</tr>
<tr>
<td></td>
<td>3800</td>
<td>9</td>
<td>Faculty 22; Published 22</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td></td>
<td>Fellowship (12)</td>
<td>3800-4000</td>
<td>10 Ph.D. (1976-1979 incl.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (14)</td>
<td>3800-4000</td>
<td>10 A&amp;FA 11, P 7, S 3, OR 1, CS 3, AM 7, Total: 32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (15)</td>
<td>3800-4000</td>
<td>9 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Title IX Fellowship (4)</td>
<td>3900</td>
<td>10 Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Proctorship (4)</td>
<td>3900</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Andrew Browder, Chairman</td>
<td>Applications due: 1/15/80</td>
<td>Bachelor's by inst.</td>
</tr>
<tr>
<td></td>
<td>3000-3200</td>
<td>10</td>
<td>Faculty 25; Published 22</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td></td>
<td>Fellowship (2)</td>
<td>3000-3200</td>
<td>10 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (19)</td>
<td>3000-3200</td>
<td>10 Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (4)</td>
<td>3400-3600</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rhode Island College, Providence 02908</td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 4/1/80</td>
<td>Bachelor's by inst.</td>
</tr>
<tr>
<td></td>
<td>2500</td>
<td>9</td>
<td>Faculty 21; Published 6</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (2)</td>
<td>3000</td>
<td>9 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Rhode Island, Kingston 02881</td>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 4/15/80</td>
<td>Bachelor's by inst.</td>
</tr>
<tr>
<td></td>
<td>3000</td>
<td>9</td>
<td>Faculty 21; Published 14</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td></td>
<td>Fellowship (5)</td>
<td>3000-3200</td>
<td>3-6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (5)</td>
<td>3000-3200</td>
<td>9 Ph.D. (1976-1979 incl.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SOUTH CAROLINA</td>
<td>Clemson University, Clemson 29631</td>
<td>Applications due: 3/15/80</td>
<td>Bachelor's by inst.</td>
</tr>
<tr>
<td></td>
<td>5005-6700</td>
<td>12</td>
<td>Bachelor's by dept.</td>
<td>1716</td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (6)</td>
<td>5120-6370</td>
<td>12 Master's by dept.</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Programming Assistantship (12)</td>
<td>17/hr.</td>
<td>3-6 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*$17 per hour (6-9 hours.)</td>
<td>20 Programming</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Late applications will be considered if positions are still available.

Villanova University, Villanova 19085

University of Puerto Rico, Rio Piedras 00931

PUERTO RICO

Brown University, Providence 02912

RHOIDE ISLAND

Rhode Island College, Providence 02908

University of Rhode Island, Kingston 02881

SOUTH CAROLINA

Clemson University, Clemson 29631
THE MATHEMATICAL SCIENCES AT CLEMSON UNIVERSITY*

An integrated master of science program in core mathematics, statistics, operations research, and computing leading to a master of science degree attractive to industry and the academic community. Further study leads to a broad based doctorate in the mathematical sciences with research supervision available in the above disciplines with applied and/or pure emphasis.

Assistantship support is available beginning at $5005/12 months pre-master's to $5200/12 months post-master's for 10 hours teaching load per academic year and $5720-$7020/12 months for 20 hours/week work in the Division of Information Systems Development.

For information and application forms write to:
John D. Fulton, Head
Department of Mathematical Sciences
Clemson University
Clemson, SC 29631

*Program developed in part by National Science Foundation
"Alternatives in Higher Education" Grant #SED75-16576.
Equal Opportunity/Affirmative Action Employer
TYPE of financial assistance

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICAL SCIENCES</th>
<th>Memphis State University, Memphis 38152</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everett E. Stevenson, Chairman</td>
<td>Teaching Assistantship (38)</td>
</tr>
<tr>
<td></td>
<td>Applications due: 4/1/80</td>
</tr>
<tr>
<td></td>
<td>25/sem.hr. 6–7 Teaching</td>
</tr>
<tr>
<td></td>
<td>Bachelor's by inst. 1756</td>
</tr>
<tr>
<td></td>
<td>Bachelor's by dept. 11</td>
</tr>
<tr>
<td></td>
<td>Master's by dept. 16</td>
</tr>
<tr>
<td></td>
<td>Ph.D. (1976–1979 incl.)</td>
</tr>
<tr>
<td></td>
<td>A&amp;NT 1, S 1, CS 1, AM 1</td>
</tr>
<tr>
<td></td>
<td>Total: 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harold Spraker, Chairman</td>
</tr>
<tr>
<td>Teaching Assistantship (12)</td>
</tr>
<tr>
<td>Applications due: 4/15/80</td>
</tr>
<tr>
<td>6 Teaching</td>
</tr>
<tr>
<td>Bachelor's by inst. 1079</td>
</tr>
<tr>
<td>Bachelor's by dept. 29</td>
</tr>
<tr>
<td>Master's by dept. 9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacob T. B. Beard, Jr., Chairman</td>
</tr>
<tr>
<td>Teaching Assistantship (7)</td>
</tr>
<tr>
<td>Applications due: 3/15/80</td>
</tr>
<tr>
<td>6 Teaching</td>
</tr>
<tr>
<td>Bachelor's by inst. 1201</td>
</tr>
<tr>
<td>Bachelor's by dept. 11</td>
</tr>
<tr>
<td>Master's by dept. 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT OF COMPUTER SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.T. Gregory, Head</td>
</tr>
<tr>
<td>Teaching Assistantship (17)</td>
</tr>
<tr>
<td>Applications due: 3/1/80</td>
</tr>
<tr>
<td>25/qtr. 20 Teaching</td>
</tr>
<tr>
<td>Bachelor's by inst. 3676</td>
</tr>
<tr>
<td>Bachelor's by dept. 22</td>
</tr>
<tr>
<td>Master's by dept. 11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lida K. Barrett, Head</td>
</tr>
<tr>
<td>Fellowship (1)</td>
</tr>
<tr>
<td>3600 12</td>
</tr>
<tr>
<td>Ph.D. (1976–1979 incl.)</td>
</tr>
<tr>
<td>A&amp;NT 1, G&amp;T 2, A&amp;FA 2, P 2, CS 1, Other 2, Total: 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE, AND STATISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Department offers Masters Degree programs with emphasis in Applied Mathematics, Statistics, and Computer Software Development, as well as multidisciplinary study in Statistical Computing, Numerical Computation and Mathematical Software. Ph.D. students in Mathematics may specialize in numerous areas, including algebra, analysis, combinatorics, differential equations, graph theory, logic, number theory, numerical analysis, optimization theory, probability, statistics, and topology. The broad spectrum of advanced study is supported by excellent library holdings, a departmental reading room with current journals and extensive departmental computing facilities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FINANCIAL AID</th>
</tr>
</thead>
<tbody>
<tr>
<td>The primary source of financial aid is the graduate assistantship. The Department offers teaching assistantships, teaching apprenticeships, and grading assistantships. In addition, there are a number of service assistantships with the University computing facilities and statistics laboratory. There are also a limited number of internships, offering applications-oriented experience in government and industry under direct supervision. Full-time assistantships typically require 15 to 20 hours per week and carry a stipend of $4500 to $5400 for the academic year. Summer stipends range from $800 to $1500, for those who desire summer support.</td>
</tr>
</tbody>
</table>

| For further information and application materials, contact the Director of Graduate Studies, Department of Mathematics, Computer Science, and Statistics, University of South Carolina, Columbia, South Carolina 29208. |
Rice University, Houston 77001

DEPARTMENT OF MATHEMATICS
John C. Polking, Chairman

Applications due: 3/15/80

Fellowship (15) 5000* 9** 6
Research Assistantship (6) 5000* 9** 6
Scholarship (2)

$2700 tuition awarded in addition to stipend,
**Up to $500 additional stipend available for summer months.

Southern Methodist University, Dallas 75275

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
T.R. N. Rao, Interim Chairman

Applications due: 3/80

Teaching Assistantship (15) 3150-4050 9 20
Research Assistantship (4) 3150-4050 9 20

SOUTHERN METHODIST UNIVERSITY
DALLAS, TEXAS 75275

- VARIED PROGRAMS
- SMALL CLASSES
- CONGENIAL FACULTY
- INDUSTRIALLY ORIENTED PROGRAMS

Department of Computer Science (M.S. & PH.D.)
Department of Mathematics (M.A. Mathematics; M.S. Applied Mathematics)
Department of Operations Research and Engineering Management (M.S. & PH.D.)
Department of Statistics (M.S. & PH.D.)

TEACHING ASSISTANTSHIPS $4000-$6000 (plus tuition waiver)

For information write: Graduate Director of appropriate department(s)

NORTH TEXAS STATE UNIVERSITY
DEPARTMENT OF MATHEMATICS

The Department of Mathematics, with a faculty of 19, offers graduate courses of instruction leading to the M.A., M.S., and Ph.D. degrees in mathematics. The department has positions for 24-30 teaching fellows who teach two three-hour classes each semester. The library currently subscribes to 572 mathematical journals, has 388 complete runs, and 729 journal titles represented. The research and teaching interests of the faculty are varied so that the students studying for a graduate degree are able to take substantial courses in core areas of mathematics as well as gain significant exposure to applied areas. The faculty establishes a close working relationship with the students in order to enhance the learning and doing of mathematics, and to lead the student to the frontier of important mathematical research.

TEACHING FELLOWSHIP STIPEND

$4000 for students without a master's degree
$4400 for students with a master's degree

The department will also award two special MERIT TEACHING FELLOWSHIPS which will pay $800 more than the regular teaching fellowship.

Committee on Teaching Fellowships: John W. Neuberger, Paul W. Lewis,
R. Daniel Mauldin, W.D.L. Appling,
David F. Dawson, Robert R. Kallman

Write to: John Ed Allen, Chairman of Mathematics Department

Committee on Teaching Fellowships: John W. Neuberger, Paul W. Lewis,
R. Daniel Mauldin, W.D.L. Appling,
David F. Dawson, Robert R. Kallman

Write to: John Ed Allen, Chairman of Mathematics Department
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF STATISTICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charles Thigpen, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (5)</td>
<td>2000-4000</td>
<td>$25</td>
<td></td>
<td>Bachelor's by inst. 3676</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bachelor's by dept. 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept. 4</td>
</tr>
<tr>
<td>*3-6 contact hours, 1 or 2 sections.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanderbilt University, Nashville 37235</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richard R. Goldberg, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (22)</td>
<td>3900</td>
<td>Waived</td>
<td>6</td>
<td>Bachelor's by inst. 1061</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bachelor's by dept. 85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ph.D, (1976-1979 incl.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A&amp;T 5, G&amp;T 2, A&amp;FA 1, AM 1, Total: 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baylor University, Waco 76703</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Howard Rolf, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>2800-3400</td>
<td>9</td>
<td></td>
<td>Bachelor's by inst. 1612</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bachelor's by dept. 21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept. 2</td>
</tr>
<tr>
<td>East Texas State University, Commerce 75428</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dale R. Bedgood, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (10)</td>
<td>3525</td>
<td>147.75</td>
<td>6</td>
<td>Bachelor's by inst. 1431</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bachelor's by dept. 57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept. 17</td>
</tr>
<tr>
<td>Lamar University, Beaumont 77710</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richard A. Alo, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (5)</td>
<td>4000</td>
<td>6</td>
<td></td>
<td>Bachelor's by inst. 464</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bachelor's by dept. 11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept. 1</td>
</tr>
<tr>
<td>North Texas State University, Denton 76203</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>James L. Poirot, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (15)</td>
<td>1000-1100</td>
<td>9</td>
<td>*</td>
<td>Bachelor's by inst. 3160</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bachelor's by dept. 40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master's by dept. 20</td>
</tr>
<tr>
<td>Scholarship (4)</td>
<td>500</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIVERSITY OF TENNESSEE, KNOXVILLE *** GRADUATE STUDY IN APPLIED AND PURE MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Department of Mathematics offers M.A., M.S., M.M., and Ph.D. degrees in a wide variety of areas. Broadly based programs are encouraged. Thesis and non-thesis options are available to M.A. and M.S. candidates. Research assistantship support up to $8,500 is available on departmental grants or with the Oak Ridge National Laboratory. Fellowship support up to $3,600 plus tuition remission and teaching assistantship support ranging from $4,248 to $5,340 plus tuition remission are available to qualified students.

The Department is energetically engaged in research. It has 46 graduate faculty and 7 visiting faculty this year. Major fields of research include algebra and number theory, analysis (classical, functional, harmonic), applied mathematics, mathematical ecology, matrix theory, numerical algebra, numerical analysis, numerical partial differential equations, integral and ordinary differential equations, partial differential equations, probability and statistics, geometric topology, transformation groups, and topological algebra. Faculty and students are currently engaged in joint work in computer science, ecology, economics, education, electrical engineering, engineering mechanics, nuclear engineering, and physics. The Department maintains close contact with the Oak Ridge National Laboratory and the Tennessee Valley Authority.

For information write to: Dr. Lida K. Barrett, Head, Department of Mathematics, University of Tennessee, Knoxville, Tennessee 37916

565
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>of financial assistance</td>
<td>amount in dollars</td>
<td>if not included in stipend</td>
<td>type per week of service</td>
</tr>
<tr>
<td></td>
<td>(with number anticipated 1980–1981)</td>
<td>9 or 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td>Applications due: 4/1/80</td>
<td>Bachelor's by inst.</td>
<td>1415</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td>U. Narayan Bhat, Chairman</td>
<td>Fellowship (2)</td>
<td>Faculty 20; Published 20</td>
<td>Ph.D. (1976–1979 incl.)</td>
<td>S 11, Total: 11</td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (30)</td>
<td>4000-6000 9</td>
<td>Master's by dept.</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (2)</td>
<td>5300-8000 12</td>
<td>Tuition (3)</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Tuition (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF OPERATIONS RESEARCH AND ENGINEERING MANAGEMENT</td>
<td>Applications due: 4/1/80</td>
<td>Bachelor's by inst.</td>
<td>1415</td>
<td>Bachelor's by dept.</td>
</tr>
<tr>
<td>U. Narayan Bhat, Chairman</td>
<td>Teaching Assistantship (3)</td>
<td>Faculty 4; Published 4</td>
<td>Ph.D. (1976–1979 incl.)</td>
<td>OR 2, Total: 2</td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (4)</td>
<td>3150-4050 9</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tuition (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Southwest Texas State University, San Marcos 78666

DEPARTMENT OF MATHEMATICS | Applications due: 4/1/80 | Master's by dept. | 5 |
| Robert Northcutt, Chairman | Teaching Assistantship (6–10) | Faculty 30; Published 11 |
| | 4675–4913 9 | 304 |

Stephen F. Austin State University, Nacogdoches 75962

DEPARTMENT OF MATHEMATICS AND STATISTICS | Applications due: 4/1/80* | Bachelor's by inst. | 1218 | Bachelor's by dept. | 15 |
| T. A. Atchison, Chairman | Teaching Assistantship (10) | Faculty 20; Published 4 |
| | 3600 9 | 125/sem. |
| | *Late applications will be considered |
| | * | |

Texas A & I University, Kingsville 78363

DEPARTMENT OF MATHEMATICS | Applications due: 4/15/80 | Bachelor's by inst. | 75c |
| Virgil C. Kowalk, Chairman | Teaching Assistantship (7) | Faculty 15; Published 6 |
| | 4020 9 | 20 |
| | * | 6 |
| | *Resident: $145 for nine hours; nonresident; increment is waived for those teaching six hours or more (1979). |

Texas A & M University, College Station 77843

DEPARTMENT OF MATHEMATICS | Applications due: 3/1/80* | Bachelor's by inst. | 4804 | Bachelor's by dept. | 25 |
| C. J. Maxson, Acting Head | Teaching Assistantship (75) | Faculty 63; Published 46 |
| | 4050–5130 9** | 6–8 |
| | *Late applications will be considered, | |
| | **May be extended for summer, | |

INSTITUTE OF STATISTICS | Applications due: Open | Bachelor's by inst. | 4804 | Bachelor's by dept. | 14 |
| W. B. Smith, Director | Fellowship (1) | Faculty 16; Published 16 |
| | 4275 9* | 200 |
| | Teaching Assistantship (21) | 4275–4518 9* | 200 |
| | Research Assistantship (4) | 4275–4518 9* | 200 |
| | GANT (4)** | 4275–4518 9* | 200 |
| | *Continuation through summer usually available, | |
| | **Graduate Assistantship Nonteaching, | |

Texas Christian University, Fort Worth 76129

DEPARTMENT OF MATHEMATICS | Applications due: Open | Bachelor's by inst. | 9 |
| David F. Addis, Chairman | Fellowship (3) | Faculty 12; Published 7 |
| | 3600–4800 9 | 6 |
| | Teaching Assistantship (5) | 3300–4000 9 | Teaching |

Texas Tech University, Lubbock 79409

DEPARTMENT OF MATHEMATICS | Applications due: 4/1/80 | Bachelor's by inst. | 2926 | Bachelor's by dept. | 13 |
| John T. White, Chairman | Fellowship (52) | Faculty 52; Published 25 |
| | 4000–4800 9 | 20 |
| | Teaching Assistantship (46) | 4000–4800 9 | |

566
<table>
<thead>
<tr>
<th>University of Houston, Houston 77004</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICS</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>G, J. Etgen, Chairman</td>
<td>Teaching Fellowship (30)</td>
<td>4200-4500 9 **</td>
<td>6 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (15)</td>
<td>3800-4200 9 **</td>
<td>6 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Late applications considered if funds are available, **Tuition is $50 per semester; fees based on hours taken.*

<table>
<thead>
<tr>
<th>University of Texas at Arlington 76019</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICS</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>V. Lakshmikantham, Chairman</td>
<td>Teaching Assistantship (29)</td>
<td>3708-5436 9</td>
<td>145-173/ sem., 6 Teaching</td>
<td></td>
</tr>
</tbody>
</table>

*Applications due: 3/1/80*

<table>
<thead>
<tr>
<th>University of Texas at Austin 78712</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF COMPUTER SCIENCE</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>A. G. Dale, Chairman</td>
<td>Fellowship (4)</td>
<td>4000 9 *</td>
<td>* 20 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Assistantship (22)</td>
<td>3500-4000 9 *</td>
<td>* 20 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (40)</td>
<td>3618-5508 9 *</td>
<td>* 20 Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*$100 tuition, $152 fees.*

<table>
<thead>
<tr>
<th>University of Texas at Dallas, Richardson 75080</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICAL SCIENCES</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>John J. Wiorkowski, Head</td>
<td>Teaching Assistantship (30)</td>
<td>442/mo.- 540/mo., 9*</td>
<td>50/sem., ** 20 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (6)</td>
<td>485/mo., 9*</td>
<td>50/sem., ** 20 Research</td>
<td></td>
</tr>
</tbody>
</table>

*12 months possible, **Plus approximately $150 for fees.*

<table>
<thead>
<tr>
<th>University of Texas at El Paso 79968</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICAL SCIENCES</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>E. F. Schuster, Chairman</td>
<td>Teaching Assistantship (12)</td>
<td>4100-4300 9</td>
<td></td>
<td>18 Teaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>University of Texas at San Antonio 78285</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIVISION OF MATHEMATICS, COMPUTER SCIENCE AND SYSTEM DESIGN</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>Stanley Wayment, Division Director</td>
<td>Teaching Assistantship (5)</td>
<td>4000 9</td>
<td>20 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>West Texas State University, Canyon 79015</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF MATHEMATICS</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>Kenneth R. VanDoren, Head</td>
<td>Teaching Fellowship (3)</td>
<td>3492-3600 9</td>
<td>123/sem., 6 Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brigham Young University, Provo 84602</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPARTMENT OF STATISTICS</strong></td>
<td><strong>TYPE</strong></td>
<td><strong>STIPEND</strong></td>
<td><strong>TUITION</strong></td>
<td><strong>SERVICE REQUIRED</strong></td>
</tr>
<tr>
<td>H. Gill Hilton, Chairman</td>
<td>Teaching Assistantship (7)</td>
<td>4500-5700 10</td>
<td>750/sem., 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Assistantship (3)</td>
<td>4500-5700 10</td>
<td></td>
<td>750/sem.</td>
</tr>
<tr>
<td></td>
<td>Scholarship (6)</td>
<td>100-1200 10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UTAH</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

567
UNIVERSITY OF UTAH

GRADUATE STUDY IN MATHEMATICS

Programs for Ph.D. degrees and Master’s degrees are offered in a wide variety of areas including algebra, algebraic and differential geometry, complex and functional analysis, computer aided geometric design, group representations, mathematical biology, mathematics of physical sciences, numerical and applied analysis, ordinary and partial differential equations, probability, statistics, topology.

The Mathematics Department has a full-time faculty of 52 and approximately 35 teaching fellows and assistants. Graduate students have the opportunity to study in close association with members of the faculty in courses and seminars and in informal discussions. Stipends for the nine-month academic year are $5350-$5800, and tuition fees are waived. Applications should be submitted as early as possible, and in any case, before March 1, 1980. The Department will begin making offers about February 1, 1980 and continue until all available positions are filled.

Direct inquiries to: Jeane Scofield
Graduate Secretary
Department of Mathematics
University of Utah
Salt Lake City, UT 84112

The University of Utah is committed to a policy of equal opportunity in student admissions, student financial assistance, and faculty and staff employment and advancement, without regard to race, color, religion, sex or national origin.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>of financial assistance</td>
<td>amount</td>
<td>9 or 12 months</td>
<td>if not included</td>
<td>hours per week</td>
</tr>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td>in dollars</td>
<td>in stipend (dollars)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VIRGINIA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>College of William and Mary, Williamsburg 23185</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W. L. Bynum, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (2)</td>
<td>3000–3700</td>
<td>9</td>
<td>10–20</td>
<td>Teaching</td>
</tr>
<tr>
<td>Research Assistantship (4)</td>
<td>3000–3700</td>
<td>9–11</td>
<td>10–20</td>
<td>Research</td>
</tr>
<tr>
<td><strong>George Mason University, Fairfax 22030</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>John A. Oppelt, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td>2000</td>
<td>9</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Teaching Assistantship (2)</td>
<td>3000–3900</td>
<td>9</td>
<td>*</td>
<td>6**</td>
</tr>
<tr>
<td><strong>James Madison University, Harrisonburg 22801</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diane M. Spresser, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (7)</td>
<td>3200</td>
<td>9</td>
<td>6</td>
<td>Teaching</td>
</tr>
<tr>
<td><strong>Old Dominion University, Norfolk 23508</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stan Weinstein, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (2)</td>
<td>2500</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (20)</td>
<td>3000–3800</td>
<td>9</td>
<td>20</td>
<td>Teaching</td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>3000–3800</td>
<td>9</td>
<td></td>
<td>Research</td>
</tr>
<tr>
<td>Summer Teaching/Research (5)</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>University of Virginia, Charlottesville 22903</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>James Ortega, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (6–8)</td>
<td>3000</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (12)</td>
<td>4700</td>
<td>9</td>
<td>1000-2000</td>
<td>20</td>
</tr>
<tr>
<td>Research Assistantship (8)</td>
<td>3960–5544</td>
<td>9</td>
<td>1000-2000</td>
<td>20</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R. Steng, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (12)</td>
<td>4000–6000</td>
<td>9</td>
<td>*</td>
<td>6**</td>
</tr>
<tr>
<td>Teaching Assistantship (26)</td>
<td>4822–5878</td>
<td>9</td>
<td>962</td>
<td>6**</td>
</tr>
<tr>
<td><strong>Virginia Commonwealth University, Medical College of Virginia, Richmond 23298</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF BIOSTATISTICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S. J. Kilpatrick, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (15)</td>
<td>3600–3900</td>
<td>12</td>
<td>5–10</td>
<td>Research</td>
</tr>
<tr>
<td><strong>Virginia Commonwealth University, Richmond 23284</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>William Haver, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplementary Fellowship (6)</td>
<td>250–350</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (15)</td>
<td>4400–5000</td>
<td>9</td>
<td>6**</td>
<td>Teaching</td>
</tr>
<tr>
<td><strong>Virginia Polytechnic Institute and State University, Blacksburg 24061</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Wayne Patty, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (45)</td>
<td>5410–5950</td>
<td>9</td>
<td>900</td>
<td>20</td>
</tr>
<tr>
<td>DEPARTMENT OF STATISTICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jesse C. Arnold, Head</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (24)</td>
<td>4410–4615</td>
<td>9</td>
<td>299/qtr.</td>
<td>20</td>
</tr>
<tr>
<td>Research Assistantship (6)</td>
<td>5660–6420</td>
<td>12</td>
<td>299/qtr.</td>
<td>20</td>
</tr>
</tbody>
</table>
## WASHINGTON

<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>of financial assistance</td>
<td>amount * 9 or 12 months if not included</td>
<td>hours per week of service</td>
<td>Academic year</td>
<td></td>
</tr>
</tbody>
</table>

### Central Washington State University, Ellensburg 98926

**DEPARTMENT OF MATHEMATICS**  
William F. Cutlip, Chairman  

Teaching Assistantship (3)  
- Applications due: 2/15/80  
- Faculty 9; Published 1  
- Bachelor's by inst. 1277  
- Bachelor's by dept. 6  
- Master's by dept. 3  

*Resident: $228 per quarter; nonresident: $752 per quarter.

### Eastern Washington State University, Cheney 99004

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**  
Ronald H. Dalla, Chairman  

Teaching Assistantship (2-3)  
- Applications due: 3/1/80  
- Faculty 20; Published 7  
- Bachelor's by inst. 1216  
- Bachelor's by dept. 14  
- Master's by dept. 4  

*At resident rates.

### University of Washington, Seattle 98195

**BIOMATHEMATICS GROUP**  
Richard A. Krommal, Chairman  

Fellowship (25)  
- Applications due: *  
- Faculty 44; Published 30  
- Bachelor's by inst. 5254  
- Master's by dept. 9  
- Ph.D. (1976–1979 incl.) Other 16, Total: 16

Teaching Assistantship (9)  
- Applications due: 2/15/80  
- Faculty 13; Published 9  
- Bachelor's by inst. 5254  
- Bachelor's by dept. 33  
- Master's by dept. 7  
- Ph.D. (1976–1979 incl.) CS 8, Total: 8

Research Assistantship (12-15)  
- Applications due: 2/15/80  
- Faculty 62; Published 44  
- Bachelor's by inst. 5254  
- Bachelor's by dept. 57  
- Master's by dept. 12  
- Ph.D. (1976–1979 incl.) A&NT 2, G&T 6, A&FA 6, S 1, OR 1, CS 1, Total: 17

*No set deadline, however, should file by February 1980 for full consideration.**Plus tuition.

### Washington State University, Pullman 99164

**DEPARTMENT OF MATHEMATICS**  
James A. Cochran, Chairman  

Fellowship (1)  
- Applications due: 2/80  
- Faculty 29; Published 23  
- Bachelor's by inst. 3810  
- Bachelor's by dept. 13  
- Master's by dept. 7  
- Ph.D. (1976–1979 incl.) A&NT 1, S 1, AM 2, Total: 4

Teaching Assistantship (30)  
- Applications due: 2/15/80  
- Faculty 20; Published 20

*4 to 6 hours in class plus office hours and preparation time.

---

**EWU HAS A BALANCED MASTER'S**

The master's programs at Eastern are designed to achieve a balance between practical applicability and solid theoretical foundations with the emphasis on understanding the connections between abstract mathematics and algorithmic methods. Coursework may combine topics from mathematics, computer science, and operations research such as graph theory, combinatorics, stochastic processes, modern abstract algebra, abstract computing, linear and nonlinear optimization, and numerical linear algebra. EWU's location provides easy access to Northwest outdoor recreation as well as the urban resources of neighboring Spokane.

For more information contact: A. George Dors, Mathematics and Computer Science, Eastern Washington University, Cheney, WA 99004 or (509)359-2326
WEST VIRGINIA

Western Washington State University, Bellingham 98225

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
Richard Levin, Chairman
Teaching Assistantship (4) 3738–4000 9 684

Marshall University, Huntington 25701

DEPARTMENT OF MATHEMATICS
Steven Hatfield, Acting Chairman
Fellowship (5–10) 900–2500 9

West Virginia University, Morgantown 26506

DEPARTMENT OF MATHEMATICS
James Dowdy, Acting Chairman
Teaching Assistantship (16) 3222 9

DEPARTMENT OF STATISTICS AND COMPUTER SCIENCE
Donald F. Butcher, Chairman
Teaching Assistantship (11) Research Assistantship (5)

Applications due: 4/80 Deadline: Faculty 24; Published 10

Applications due: 4/1/80 Deadline: Faculty 15; Published 9

Applications due: 3/1/80 Deadline: Faculty 34; Published 13

Applications due: 3/15/80 Deadline: Faculty 21; Published 18

Applications due: 2/15/80 Deadline: Faculty 21; Published 12

Applications due: 3/1/80 Deadline: Faculty 71; Published 67

Applications due: 12/30/79 Deadline: Faculty 71; Published 67

Applications due: 1/15/80 Deadline: Faculty 26; Published 26

Applications due: 2/15/80 Deadline: Faculty 26; Published 26

Applications due: 2/15/80 Deadline: Faculty 71; Published 67

Degree Requirements

of financial assistance amount 9 or 12 in dollars
9 or 12 months
if not included hours per week
in stipend (dollars) type of service required
Academic year

DEGREES AWARDED

Academic year 1978–1979

Bachelor's by inst, 1118
Bachelor's by dept, 42
Master's by dept, 2

Bachelor's by inst, 973
Bachelor's by dept, 3
Master's by dept, 3

Bachelor's by inst, 529
Bachelor's by dept, 3
Master's by dept, 8

Bachelor's by inst, 529
Bachelor's by dept, 26
Master's by dept, 12

Bachelor's by inst, 417
Bachelor's by dept, 9
Master's by dept, 1

Bachelor's by inst, 5104
Bachelor's by dept, 31
Master's by dept, 61
Ph.D. (1976–1979 incl.)
CS 26, Total: 26

Bachelor's by inst, 5104
Bachelor's by dept, 46
Master's by dept, 30
Ph.D. (1976–1979 incl.)
A&NT 6, G&T 13, L 6,
A&FA 13, P 1, AM 3,
Total: 42

Bachelor's by inst, 2553
Bachelor's by dept, 23
Master's by dept, 6
Ph.D. (1976–1979 incl.)
A&NT 1, A&FA 3, AM 1,
Total: 5
University of Wisconsin-Oshkosh 54901

DEPARTMENT OF MATHEMATICS
N.J. Kuenzi, Chairman

Teaching Assistantship (1)  3500  9  900  20

of financial assistance
amount in dollars
if not included hours
of service
9 or 12

Applications due: 4/1/80
Faculty 23; Published 5
Bachelor's by dept.  12
Master's by dept.  6

University of Wyoming, Laramie 82071

DEPARTMENT OF MATHEMATICS
Joseph Martin, Chairman

Teaching Assistantship (20)  4122-5496  9

Applications due: 2/15/80
Faculty 25; Published 16
Bachelor's by dept.  1289
Bachelor's by dept.  2
Master's by dept.  7
Ph.D. (1976-1979 incl.)
A&NT, AM 1, AM 1, Total: 2
Bachelor's by inst.  1289
Master's by dept.  7
Ph.D. (1976-1979 incl.)
S 1, Total: 1

WYOMING

CANADA

Acadia University, Wolfville, Nova Scotia B0P 1X0

DEPARTMENT OF MATHEMATICS
F.N. Chipman, Head

Fellowship (2)  3150  9  *

*resident; $1150; nonresident: $1900.

Carleton University, Ottawa, Ontario K1S 5B6

DEPARTMENT OF MATHEMATICS
Louis D. Nel, Chairman

Scholarship and Teaching Assistantship (19)  5500-7000  12  2370  S-10 Teaching
Combined Teaching/Research Assistantship (25)  3500-7500  12  1147,50  10 Teaching, Research

Concordia University, Montreal, Quebec H3G 1M8

DEPARTMENT OF COMPUTER SCIENCE
John McKay, Acting Head

Fellowship (3)  5000-6000  12  2250*
Teaching Assistantship (7)  2000-2800  9  2250*  4
Research Assistantship (9)  3500-5500  12  2250*
Scholarship (3)  6300  12  2250
Quebec Fellowship (2)  4000  12  2250*

*Total for degree.

Dalhousie University, Halifax, Nova Scotia B3H 4H8

DEPARTMENT OF MATHEMATICS
P.N. Stewart, Chairman

Teaching Assistantship (12)  4500-5500  926  3 Teaching
Research Assistantship (1)  7000  926  3 Research
Scholarship (4)  4500-7200  926

Lakehead University, Thunder Bay, Ontario P7B 5E1

DEPARTMENT OF MATHEMATICAL SCIENCES
W. Eames, Chairman

Fellowship (9)  3200-4800  S-12  *
Teaching Assistantship **  2550  S
Scholarship (6)  1000  S-12
Bursary **  450  S

*Canadian: $790 first year, $310 second year; Visa: $650 per term.
**No upper limit.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>Academic year</td>
</tr>
<tr>
<td>in dollars</td>
<td>months</td>
<td>in stipend (dollars)</td>
<td>hours</td>
<td>type</td>
</tr>
<tr>
<td>McGill University, Montréal, Québec H3A 2K6</td>
<td>Applications due: 2/15/80</td>
<td>Bachelor's by dept.</td>
<td>1978–1979</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Faculty 47; Published 25</td>
<td>Master's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bachelor's by dept.</td>
<td>Total: 16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master's by dept.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students getting financial aid receive a minimum of $6000, with mixed duties.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memorial University of Newfoundland, St. John's, Newfoundland A1B 3X7</td>
<td>Applications due: Open</td>
<td>Bachelor's by inst.</td>
<td>1980–1981</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND STATISTICS</td>
<td>Faculty 45; Published 39</td>
<td>Bachelor's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J.H. Burry, Head</td>
<td>Bachelor's by dept.</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (4)</td>
<td>Teaching, marking, labs</td>
<td>Master's by dept.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td>0–10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (2)</td>
<td>Scholarship (4)</td>
<td>Teaching Assistantship (1)</td>
<td>12</td>
<td>600</td>
</tr>
<tr>
<td>4000–6700</td>
<td>12</td>
<td>750</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>4000–6700</td>
<td>12</td>
<td>600</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND STATISTICS</td>
<td>Faculty 47; Published 39</td>
<td>Bachelor's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.J. Coleman, Head</td>
<td>Bachelor's by dept.</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (24)</td>
<td>Scholarship (4)</td>
<td>Teaching Assistantship (1)</td>
<td>12</td>
<td>600</td>
</tr>
<tr>
<td>1500–7000</td>
<td>12</td>
<td>750</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Scholarship (4)</td>
<td>Ontario Graduate (3)</td>
<td>4000–8700</td>
<td>12</td>
<td>600</td>
</tr>
<tr>
<td>*Tuition varies according to Citizenship and program: Masters $750; Doctoral $1500; Visa $1900.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simon Fraser University, Burnaby, British Columbia V5A 1S6</td>
<td>Applications due: 4/30/80</td>
<td>Bachelor's by inst.</td>
<td>1980–1981</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Faculty 27; Published 25</td>
<td>Bachelor's by dept.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M. Singh, Chairman</td>
<td>Bachelor's by dept.</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (35)</td>
<td>Teaching Assistantship (1)</td>
<td>266/sem.</td>
<td>15</td>
<td>Teaching Assistantship (1)</td>
</tr>
<tr>
<td>6710–8460</td>
<td>12</td>
<td>266/sem.</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (5)</td>
<td>Research Assistantship (1)</td>
<td>266/sem.</td>
<td>Research Assistantship (1)</td>
<td></td>
</tr>
<tr>
<td>6240</td>
<td>12</td>
<td>266/sem.</td>
<td>Research Assistantship (1)</td>
<td></td>
</tr>
<tr>
<td>Scholarship (2–3)</td>
<td>Scholarship (1)</td>
<td>266/sem.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000–9000</td>
<td>12</td>
<td>266/sem.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THE UNIVERSITY OF ALBERTA • EDMONTON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRADUATE STUDIES IN MATHEMATICS AND STATISTICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantships: $5,400 - $6,650.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(In addition to the above, Summer Research Assistantships of at least $1,700 are generally available.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For further information write: Chairman, Graduate Committee</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Alberta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edmonton, Alberta, Canada T6G 2G1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Alberta, Edmonton, Alberta T6G 2G1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>--------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTING SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>John Tartar, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (17)</td>
<td>Applications due: 7/15/80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4800-7000 8</td>
<td>Faculty 16; Published 16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (3)</td>
<td>Bachelor's by inst. 4425</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4800-7000 8</td>
<td>Bachelor's by dept. 21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersession Bursary (7)</td>
<td>Master's by dept. 9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1830 4</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>CS 6, Total: 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S. Klamkin, Chairman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship (1)</td>
<td>Bachelor's by inst. 4425</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000 8</td>
<td>Bachelor's by dept. 35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (15)</td>
<td>Master's by dept. 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5400-6650 8</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (12)</td>
<td>A&amp;NT 1, G&amp;T 2, A&amp;FA 1,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700 4</td>
<td>AM 1, Total: 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of British Columbia, Vancouver, British Columbia V6T 1W5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.C. Gilmore, Head</td>
<td>Applications due: 4/1/80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellowship*</td>
<td>Faculty 18; Published 15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000-6000 12</td>
<td>Bachelor's by inst. 3254</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (16)</td>
<td>Bachelor's by dept. 55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5350 9</td>
<td>Master's by dept. 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (10)</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6240 12</td>
<td>CS 5, AM 1, Total: 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Number not known at this time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.N. Moyls, Head</td>
<td>Applications due: 3/31/80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (37)</td>
<td>Faculty 70; Published 60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-4900-5150 9</td>
<td>Bachelor's by inst. 3254</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship (4)</td>
<td>Bachelor's by dept. 22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3200-7000 12</td>
<td>Master's by dept. 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*All applicants are automatically considered.</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Calgary, Calgary, Alberta T2N 1T2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF STATISTICS AND MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.C. Milner, Head</td>
<td>Applications due:*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (18)</td>
<td>Faculty 47; Published 44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4900-6100 8</td>
<td>Bachelor's by inst. 2322</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Assistantship (7)</td>
<td>Bachelor's by dept. 59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3800 8</td>
<td>Master's by dept. 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship (4)</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3200-7000 12</td>
<td>A&amp;NT 4, A&amp;FA 6, S 2,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*All applicants are automatically considered.</td>
<td>AM 3, Total: 15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Guelph, Guelph, Ontario N1G 2W1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS AND STATISTICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W.R. Smith, Chairman</td>
<td>Applications due:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>Faculty 30; Published 22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3600 9</td>
<td>Bachelor's by inst. 2388</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship*</td>
<td>Bachelor's by dept. 16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>267, 50/sem, 10 Tutorial teaching</td>
<td>Master's by dept. 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Entrance scholarships vary from year to year.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Ottawa, Ottawa, Ontario K1N 9B4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marcel Deruaz, Chairman</td>
<td>Applications due: 4/9/80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (6)</td>
<td>Faculty 29; Published 21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5000-6000 12</td>
<td>Bachelor's by inst. 2388</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship (3)</td>
<td>Bachelor's by dept. 19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000 12</td>
<td>Master's by dept. 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Teaching Assistantship (10)*</td>
<td>Ph.D. (1976-1979 incl.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000 12</td>
<td>A&amp;FA 1, Total: 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Interdisciplinary program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
University of Toronto, Toronto, Ontario MSS 1A1

DEPARTMENT OF COMPUTER SCIENCE
J.N.P. Hume, Chairman

- Connaught Fellowship (2)
  - 5500
  - 12
- University Open Fellowship (6)
  - 4100 M.S., 12
  - 4500 Ph.D., 12
  - 6240 Ph.D., 12
- Scholarship (20)
  - 7000
- Ontario Graduate Scholarship (5)
  - 4800

*Visa students: $2063.50; other: $903.50.

DEPARTMENT OF MATHEMATICS
F.V. Atkinson, Chairman

- Fellowship (11)
  - 7000
- Teaching Assistantship (2)
  - 960-1440
- Research Assistantship (2)
  - 3000

*Extendable to 12 months with an additional $1600.

DEPARTMENT OF STATISTICS
D.A.S. Fraser, Chairman

- Teaching Assistantship (40)
  - 2900-4000
- Research Assistantship (10)
  - 2400-4000
- Scholarship (6)
  - 4100-7000
- Connaught Scholarship (1)
  - 5500

University of Victoria, Victoria, British Columbia V8W 2Y3

DEPARTMENT OF MATHEMATICS
Roger R. Davidson, Chairman

- Fellowship (2)
  - 4125
  - 9* 655
- Teaching Assistantship (2)
  - 960-1440
  - 655
- Research Assistantship (2)
  - 3000

*Extendable to 12 months with an additional $1600.

University of Western Ontario, London, Ontario N6A 5B9

DEPARTMENT OF MATHEMATICS
D. Borwein, Head

- Department/Research Assistantship (14)
  - 5500-7500
  - 920* 0-6 **

*Tuition for visa students is $2080, but those students may compete for bursaries to defray the additional fees.
**Any or all of tutoring, proctoring, marking, research, and/or consulting in Statistical Laboratory.

Graduate Studies
Department of Applied Mathematics, University of Waterloo

The Department of Applied Mathematics of the University of Waterloo invites applications for graduate study and graduate assistantships from students (with Honours degrees, or equivalent) seeking M.Math, M. Phil. or Ph.D. degrees. Active areas of research include general relativity, differential geometry and related topics, differential equations and control theory, information theory, fluid mechanics, aerodynamics, physical oceanography, elasticity, magneto-gasdynamics, quantum theory and its applications to physical and chemical problems.

Excellent computer facilities are available.

For more information, please write: The Graduate Officer
 Department of Applied Mathematics
 University of Waterloo
 Waterloo, Ontario, Canada
 N2L 3G1

575
<table>
<thead>
<tr>
<th>TYPE</th>
<th>STIPEND</th>
<th>TUITION</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>of financial assistance</td>
<td>amount</td>
<td>9 or 12</td>
<td>if not included</td>
<td>Academic year</td>
</tr>
<tr>
<td>(with number anticipated 1980–1981)</td>
<td>in dollars</td>
<td>months</td>
<td>in stipend (dollars)</td>
<td>per week</td>
</tr>
<tr>
<td>University of Windsor, Windsor, Ontario N9B 3P4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.R. Atkinson, Chairman</td>
<td>Faculty 24; Published 20</td>
<td>Ph.D. (1976–1979 incl.)</td>
<td>A&amp;NT 1, A&amp;FA 1, AM 3.</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (20)</td>
<td>3600–3900</td>
<td>9</td>
<td>*</td>
<td>Total: 5</td>
</tr>
<tr>
<td>Research Assistantship (4)</td>
<td>1500–2000</td>
<td>9</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Scholarship (8)</td>
<td>1500–2250</td>
<td>12</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>York University, Downsview, Ontario M3J 1P3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Denzel, Chairman</td>
<td>Applications due: 4/1/80</td>
<td>Bachelor's by inst. 3400</td>
<td>Bachelor's by dept. 46</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (15)</td>
<td>3200</td>
<td>9</td>
<td>*</td>
<td>Problem sessions, grading</td>
</tr>
<tr>
<td>Scholarship (2)</td>
<td>2500</td>
<td>9</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>
*Canadian: $800; non-Canadian $1600.

---

**SIAM-AMS PROCEEDINGS**

**FRACTURE MECHANICS**

edited by Robert Burridge

This volume contains expanded versions of ten of the twelve invited papers given at a Joint AMS/SIAM Symposium on Mathematical Problems in Fracture Mechanics, New York, March 28–29, 1978. The Symposium was supported by the NSF and ERDA; its purpose was to interest applied mathematicians in this area of mechanics, which is currently of growing interest both in engineering and in the theory of earthquake mechanisms.

The Proceedings are divided into four sections which correspond to the four sessions at the Symposium.

Part I. Dynamic fracture problems
- J. D. Achenbach, *Elastodynamic fracture mechanics*
- L. B. Freund, *A one-dimensional dynamic crack propagation model*
- R. Burridge, G. Conn, and L. B. Freund, *The stability of a rapid shear crack with finite cohesive traction (Abstract only)*

Part II. Seismic source theory
- K. Aki, *Evolution of quantitative models of earthquakes*
- R. Madariga, *Seismic radiation from earthquake models based on fracture mechanics*

Part III. Nonlinear fields and integral conservation laws
- J. K. Knowles, *Crack problems in finite elastostatics*
- J. R. Willis, *The solution of elastoplastic fracture problems by matched asymptotic expansions*
- L. B. Freund, *Stress intensity factor calculations based on the M-integral conservation law*

Part IV. Rate-dependent and nonelastic crack growth
- R. A. Schapery, *On the analysis of crack initiation and growth in nonhomogeneous viscoelastic media*
- D. A. Simons, *The analysis of propagating slip zones in porous elastic media*

Volume 12, 170 + vi pages
List $13.60; institutional member $10.20; individual member $6.80
ISBN 0-8218-1332-3; LC 78-24473
Publication date: March 22, 1979
To order, please specify SIAMS/12

Prepayment is required for all American Mathematical Society publications.

Send for the book(s) above to: AMS, P.O. Box 1571, Annex Station, Providence, RI 02901

---

576
Departments supplying the information published on the preceding pages were asked the following question: Will your department accept a critical, historical and/or expository thesis of sufficiently high quality for the Ph.D. degree? D.A. degree? or other degree? Affirmative responses to this question are listed below.

**CALIFORNIA**
- Univ California, Berkeley
  - Statistics
  - Ph.D.
- Univ California, Davis
  - Mathematics
  - Ph.D.

**COLORADO**
- Univ Denver, Denver
  - Mathematics and Computer Science
  - Ph.D.
- Univ Northern Colorado, Greeley
  - Mathematics
  - D.A.
  - Research and Statistical Methodology
  - Ph.D.

**CONNECTICUT**
- Yale Univ, New Haven
  - Computer Science
  - Statistics
  - Ph.D.
  - Ph.D.

**DISTRICT OF COLUMBIA**
- American Univ, Washington
  - Mathematics, Statistics
  - Computer Science
  - Ph.D.

**FLORIDA**
- Univ Florida, Gainesville
  - Statistics
  - Ph.D.
- Univ Miami, Coral Gables
  - Mathematics
  - Ph.D.

**IDAHO**
- Idaho State Univ, Pocatello
  - Mathematics
  - D.A.

**ILLINOIS**
- Illinois State Univ, Normal
  - Mathematics
  - Ph.D.
- Univ Chicago, Chicago
  - Mathematics
  - Statistics
  - Ph.D.
- Univ Illinois, Chicago Circle
  - Mathematics
  - Ph.D.
- Univ Illinois, Urbana
  - Mathematics
  - Ph.D.

**INDIANA**
- Indiana Univ, Bloomington
  - Mathematics
  - Ph.D.

**IOWA**
- Univ Iowa, Iowa City
  - Mathematics
  - Ph.D.

**KANSAS**
- Kansas State Univ, Manhattan
  - Mathematics
  - Ph.D.

**MASSACHUSETTS**
- Boston Univ, Boston
  - Mathematics
  - Ph.D.

**MICHIGAN**
- Michigan State Univ, East Lansing
  - Mathematics
  - Ph.D.
- Univ Michigan, Ann Arbor
  - Mathematics
  - Ph.D.

**MISSOURI**
- Saint Louis Univ, St. Louis
  - Mathematics
  - Ph.D.

**MONTANA**
- Univ Montana, Missoula
  - Mathematics
  - Ph.D.

**NEW HAMPSHIRE**
- Dartmouth Coll, Hanover
  - Mathematics
  - Ph.D.

**NEW YORK**
- Adelphi Univ, Garden City
  - Mathematics
  - Ph.D., Other
- Cornell Univ, Ithaca
  - Mathematics
  - Ph.D.
- New York Univ, Courant, New York
  - Mathematics
  - Ph.D.
- New York Univ, New York
  - Mathematics Education
  - Ph.D.
- Syracuse Univ, Syracuse
  - Mathematics
  - Ph.D.
- Univ Rochester, Rochester
  - Statistics
  - Ph.D.

**NORTH CAROLINA**
- North Carolina State Univ, Raleigh
  - Mathematics and Science Education
  - Ph.D.

**OHIO**
- Bowling Green State Univ, Bowling Green
  - Mathematics and Statistics
  - Ph.D.
- Ohio Univ, Athens
  - Mathematics
  - Ph.D.
- Univ Toledo, Toledo
  - Mathematics
  - Ph.D.

**OKLAHOMA**
- Oklahoma State Univ, Stillwater
  - Mathematics
  - Ed.D.
PROCEEDINGS OF THE STEKLOV INSTITUTE

INVESTIGATIONS
IN THE GENERAL THEORY
OF STATISTICAL DECISIONS
A. S. Holevo

This monograph is devoted to the "noncommutative" theory of statistical decisions, which permits one to include, along with Wald's classical scheme, an essentially new class of statistical problems arising in the theory of quantum measurement and quantum communication channels. It is a matter of optimal measurement of the state parameters of a system (classical quantum measurement). An apparatus for integral representation of functionals, to the minimization of which the problem of optimal measurement reduces, is worked out: the problem of existence of an optimal measurement is studied and conditions for optimality are established. Applications to the problem of optimal measurement of the mean value of a boson field are considered.

Number 124(1976)
140 + vi pages
List price $40.00; institutional member price $30.00; individual member price $20.00
ISBN 0-8218-3024-4; LC 78-16140
Publication date: September 1978
To order, please specify STEKLO 124

LECTURES ON MATHEMATICS IN THE LIFE SCIENCES

SOME MATHEMATICAL QUESTIONS IN BIOLOGY. X.
edited by Simon Levin

This volume contains lectures given at a Symposium on Some Mathematical Questions in Biology, held in Washington, D.C., on February 14, 1978, in conjunction with the annual meeting of the American Association for the Advancement of Science. The Symposium was supported by the National Institutes of Health and cosponsored by the Society for Industrial and Applied Mathematics.

The contents of the volume are as follows:
Joseph B. Keller, Stochastic theories of carcinogenesis and population genetics
G. F. Oster and S. M. Rocklin, Optimization models in evolutionary biology
Peter H. Richter, Pattern formation in the immune system
Alan S. Perelson, Optimal strategies for an immune response
H. C. Longuet-Higgins, Perception of melodies

Volume 11
179 + viii pages
List price $13.20; Institutional member price $9.90; Individual member price $6.60
ISBN 0-8218-1161-4; LC 77-16140
Publication date: January 30, 1979
To order, please specify LLSCI/11

Prepayment is required for all American Mathematical Society publications.
Send for the book(s) above to: AMS, P.O. Box 1571, Annex Station, Providence, RI 02901

578
Stipends for Study and Travel

Graduate Support

**American Association for the Advancement of Science. Summer Fellowship.** Provides support for up to twenty outstanding graduate students in the social and natural sciences as intern reporters, researchers, and production assistants in the mass media for 10 weeks during the summer of 1980. (Exceptional undergraduate or postdoctoral students will also be considered.) Fellows will work for radio and television stations, newspapers, and magazines and will have their travel expenses and stipends paid by the AAAS. Fellows will have the opportunity to: observe and participate in the process by which events and ideas become news; improve their communication skills by learning to describe complex technical subjects in a manner understandable by the public; and increase their understanding of editorial decision-making and the manner in which information is effectively disseminated. Each fellow will: attend an orientation and evaluation session in Washington, D.C.; begin the internship in mid-June; and submit an interim and final report to AAAS to help evaluate the program. Interested students should write for more information and application procedures to: Coordinator, Mass Media Science Fellow Program, American Association for the Advancement of Science, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036. Application deadline will be February 15.

**American Indian Fellowships.** A program for Native Americans enrolled in a graduate degree program in the fields of education, law, medicine and related fields; or undergraduate or graduate degree program in the fields of business administration, engineering or natural resources and related fields. Covers full cost of tuition and fees, and book allowance, plus stipend and allowance for dependents. Write to Indian Fellowship Program, Room 2160, F.O.B. 6, Washington, D.C. 20202; or call 202-245-2975.

**Ames Laboratory. Graduate Assistantships.** Areas of interest include computer languages, programming systems for command and control, adaptive and self-organizing logic systems with application to control processes, numerical analysis, differential and integral equations, special function theory, and applied mathematics. Direct inquiries to Dr. R. S. Hansen, Director, Ames Laboratory, Iowa State University, Ames, Iowa 50011.

**Associated Western Universities (AWU).** AWU is a contractor for the U. S. Department of Energy, providing stipends and other necessary remuneration to teaching faculty members and to student participants who desire to become involved in an energy or energy-related research project at one of the cooperative laboratories or centers in the western U. S. For information write to Associated Western Universities, Inc., 136 East South Temple, Suite 2200, Salt Lake City, Utah 84111.

**Battelle Memorial Institute, Pacific Northwest Laboratory.** Mathematics efforts in support of a number of on-going Department of Energy programs include neutron transport and radiative transfer, plasma dynamics, electromagnetic theory, applied statistics, diffusion processes, two-phase fluid flow, stochastic processes, and economic modeling. A limited number of summer appointments are available to faculty members, graduate students, and undergraduates through the Northwest College and University Association for Science (NORCUS) Program. Inquiries should be directed to NORCUS Office, Joint Center for Graduate Study, 100 Sprout Road, Richland, Washington 99352.

**California State Graduate Fellowships.** The state offers fellowships to cover tuition and fees only, for residents of California who attend accredited graduate or professional schools located in California. Write to Director, California Student Aid Commission, 1410 Fifth Street, Sacramento, California 95814. The 1980 deadline to apply is February 11, 1980.

**Center for Naval Analyses. Summer Employment.** CNA, operated under contract with the University of Rochester, is engaged in a broad spectrum of operations research and systems analysis studies for the U.S. Navy, Marine Corps, and other government agencies. Opportunities are available for graduate students in operations research, economics, engineering, mathematics, physics, and statistics. Assignments include analysis related to force level planning, manpower, logistics, and operational effectiveness. U.S. citizenship required. Information may be obtained from Mr. P. D. Moke, Employment Manager, Center for Naval Analyses, 2000 N. Beauregard St., Alexandria, VA 22311.

**Danforth Graduate Fellowships.** Approximately one hundred fellowships will be awarded to U.S. citizens committed to careers in college and university teaching, and dedicated to a life of service.
guided by moral or ethical values; in subject-matter specializations likely to be taught in an undergraduate liberal arts curriculum, and for pursuit of the Ph.D. at an accredited U.S. university of the Fellow's choice. Fellowships are for one year, with the possibility of renewal for up to four years, and include up to $4,000 for tuition and fees plus a modest living stipend. Twenty-five percent of the fellowships are expected to be awarded to Blacks, Mexican-Americans, Native Americans (including American Indians, Eskimos, Aleuts, and Native Hawaiians), and Puerto Ricans. Applicants may be college seniors or Ph.D. students, and must be nominated by campus Liaison Officers. The deadline for completed applications is December 15, 1979. Detailed information is available from the Danforth Graduate Fellowship Program, Danforth Foundation, 222 South Central Avenue, St. Louis, Missouri 63105.

**General Electric Foundation.** Provides research and study grants to selected institutions on a programmed, rotational basis, to be used by the graduate departments as they deem appropriate, which includes fellowships and teaching assistantships in some cases. The Foundation does not grant fellowships or other awards to individuals. For specific information regarding institutions to which grants have been made, write to William H. Stoddard, 1285 Boston Avenue, Bridgeport, Connecticut 06602.

**Daniel and Florence Guggenheim Foundation.** Fellowships for U.S. and Canadian residents interested in jet propulsion, energy conversion, fluid mechanics and flight structures. For information on flight structures, write to the Department of Civil Engineering and Engineering Mechanics, Columbia University. For information on jet propulsion and fluid mechanics, write to the Director of Graduate Studies, Mechanical and Aerospace Engineering, Princeton University.

**Fannie and John Hertz Foundation Fellowships.** Offered on the basis of academic and research performance, recommendations, and personal interview, for the support of personal and institutional expenses during graduate education directed toward the Ph.D. degree in applied physical sciences. Tenable at the Department of Applied Science of the Davis Campus, and at all campuses of the University of California; California Institute of Technology; Carnegie-Mellon University; The University of Chicago; Courant Institute of Mathematical Sciences, New York University; Georgia Institute of Technology; Massachusetts Institute of Technology; Polytechnic Institute of New York; Rensselaer Polytechnic Institute; Rice University; University of Rochester; Stanford University; Texas A & M University; and Vanderbilt University. Application deadline is November 15. Applicants should contact the Office of the Graduate Dean at these institutions, or write directly to the Hertz Foundation, P. O. Box 2230, Livermore, California 94550.

**Hughes Aircraft Company Fellowships.** Masters, Engineer Degree, and Doctoral Fellowships are awarded on a competitive basis to qualified individuals for study at selected universities in the fields of electrical, mechanical, aerospace or systems engineering, computer science, mathematics, or physics. Most are awarded on a work-study basis. U.S. citizenship is required. Write to the Corporate Fellowship Office, Hughes Aircraft Company, Centinela and Teale Streets, Culver City, California 90230.

**Hubert H. Humphrey Doctoral Fellowships.** Awards are made by the U. S. Arms Control and Disarmament Agency (ACDA) to stimulate interest in the study of arms control in universities around the country by supporting unclassified doctoral dissertation research in the field. Applicants must be U. S. citizens or nationals and must have completed all requirements for the doctorate, except the dissertation, at a U. S. college or university. The stipend will be $4,600 for a 12-month period, plus applicable tuition and fees for one year. Application deadline is March 15, 1980, for the award period September 1, 1980—August 31, 1981. For application materials write: Hubert H. Humphrey Fellowship Program, U. S. Arms Control and Disarmament Agency, Washington, D.C. 20451.

**Johns Hopkins University.** School scholarships are available to students seeking the Sc.M. or Ph.D. in biostatistics. Applicants should have one year of biological, physical, or social science in addition to preparation in mathematics. Address inquiries to Chairman, Department of Biostatistics, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Maryland 21205.

**Kappa Kappa Gamma Fraternity. Fellowships.** Awards of $500—$750 for graduate study in all fields. These are open to women who are citizens of the United States or Canada and who have received a Bachelor's degree or will obtain it prior to July 1 of the year in which the awards are made. This degree must be from an institution where a chapter of Kappa Kappa Gamma is located or graduate work must be taken on a campus where a chapter is located. Awards are made entirely on a
competitive basis without regard to fraternity affiliation. A candidate must be a person with high scholastic standing who is outstanding in some form of activity and who has made a real contribution to the life of her alma mater. She should have a well-outlined plan for graduate activity, have a definite goal in prospect, and know what use she expects to make of her work in the future. Applications must be completed before February 15. Forms are available from Dr. Miriam Locke, Chairman of Fellowships, Kappa Kappa Gamma Fraternity, 1715 Fourth Street, Tuscaloosa, Alabama 35401.

Kosciuszko Foundation. Scholarships and grants for Americans of Polish background. Application deadline is January 15. For information write to Scholarship and Exchange Programs, The Kosciuszko Foundation, 15 East 65th Street, New York, New York 10021.

Laboratory Graduate Participation. Opportunity for graduate students working toward master's and doctoral degrees in the physical, life, social, and environmental sciences, engineering, and mathematics in DOE Research Laboratories, Energy Centers and Mining Centers. The annual stipend payment, applicable for all levels, is $4,000, with allowances: $1,000 for spouse and child, $1,500 for spouse and 2 or more children. An additional $1,000 allowance for unusual situations of urgent need is available. U.S. citizenship is required. About twenty-five appointments are awarded annually. Inquiries may be addressed to University Programs, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge, Tennessee 37830.

National Science Foundation. Graduate Fellowships. Three-year awards available to citizens or nationals of the U.S. for full-time study leading to master's or doctoral degrees in science (including mathematics). Awards made only to students who have completed less than one year of graduate study. Stipends of $4,320 for a 12-month tenure ($360 per month), regardless of level of study. No dependency allowances. Education allowance paid to U.S. fellowship institution; tuition and fees to foreign fellowship. Scores attained on the Graduate Record Examinations (GRE) are used in evaluation of applicants. Application deadline November 29, 1979. Further information and application materials may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

National Science Foundation. Minority Graduate Fellowships. Awarded for study or work leading to the master's or doctoral degrees, these fellowships are granted for periods of three years. They are open to U.S. citizens or nationals who are members of an ethnic minority group underrepresented in the advanced levels of the U.S. science personnel pool, i.e., American Indian, Alaskan Native (Eskimo or Aleut), Black, Mexican American/Chicano, or Puerto Rican. The stipend is $4,320 for 12-month tenures, plus tuition allowance. No dependency allowances. The deadline for applications is November 29, 1979. Application materials may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

National Science Foundation. Science Faculty Professional Development Program. See description in Postgraduate Support section.

Office of Naval Research. Supports research over a wide range of areas including mathematics, operations research, statistics and probability, information systems, and fluid dynamics. For information write: The Director, Mathematical and Information Sciences Division, Office of Naval Research, Arlington, Virginia 22217.

Sigma Delta Epsilon, Graduate Women in Science, Inc. Awards are available on a competitive basis to women who hold a degree from a recognized institution of higher learning in one of the mathematical, physical or biological sciences and are currently involved in research or have an approved research proposal. Appointments will be made irrespective of race, nationality, creed or marital status. Two types of awards are available: Eloise Gerry Fellowship ($2,000 to $8,000, not to be used for a degree program; deadline for applications and credentials, December 1), and Grants-in-Aid ($750; deadline, January 15). Announcement of awards will be made by the following July 1. Further information and application forms may be obtained from: Sigma Delta Epsilon, Graduate Women in Science, Inc., 1346 Connecticut Avenue, N.W., Room 1102, Washington, D.C. 20036. An individual may apply for only one of the two awards. The applicant should indicate to which type of award her inquiry is addressed.

Smithsonian Institution. Predoctoral Fellowships. Appointments to students recommended by universities where they have substantially completed formal course requirements for the doctorate or its equivalent, to conduct research for the dissertation. Offered annually in the history of mathematics.
for a period from six months to one year. $7,000 stipend, plus research expense allowance. The proposed project must be approved in advance by appointee’s advisor, conducted within Smithsonian facilities, and must be related to research and interests of the Institution. Deadline for application is January 15th yearly for the following academic year. Further information and application forms may be obtained from the Office of Fellowships and Grants, Smithsonian Institution, Room 3300, L’Enfant Plaza, Washington, D.C. 20560.

University of Massachusetts. Sabbatical Lectureships. Available in the Department of Mathematics and Statistics, these lectureships are open to faculty members of colleges or universities without a Ph.D. program in mathematics and/or statistics, who wish to spend their sabbatical leaves at the University of Massachusetts. Applicants should generally have a master’s degree, but not a Ph.D; will be required to teach one course per semester and will be expected to enroll in one or two courses and a seminar. Stipends are available; tuition will be waived. For further information, write to Professor E. A. Connors, Head, Department of Mathematics and Statistics, University of Massachusetts, Amherst, Massachusetts 01003.

Woodrow Wilson Women’s Studies Research Grants. Grants of up to $1,000 are available for students at graduate schools in the United States who have completed all pre-dissertation requirements. These grants are designed to encourage original and significant research about women on such topics as the evolution of women’s role in society and particularly contemporary America, women in history, the education of women, the psychology of women, and women as seen in literature. Forms and further information are available from the Woodrow Wilson National Fellowship Foundation, Women’s Studies Program, Box 642, Princeton, New Jersey 08540. The deadline for receipt of applications is November I.

Zonta International. Amelia Earhart Fellowship Awards. For women holding a bachelor’s degree in a science accepted as preparatory for advanced study in an aerospace-related science or engineering. Recipients will be granted $5,000, and past recipients may apply for renewed grants. Applications must be filed by January 1, 1980 for the 1980-1981 awards. Write to Zonta International, 35 East Wacker Drive, Chicago, Illinois 60601.

Postdoctoral Support

Air Force Office of Scientific Research. Research Contracts and Grants. Mathematicians and scientists in the information or mathematical sciences are encouraged to submit proposals through their organizations, for research support. It would be helpful if proposals to be considered for a given fiscal year, which begins on October I, were submitted six months prior to that date. Recipients of support are not required to be U.S. citizens. Research areas of interest include physical mathematics, probability, statistics, numerical analysis, system science, control theory, and information science. Research proposals should be forwarded to the Director of Mathematical and Information Sciences, Air Force Office of Scientific Research, Building 410, Bolling AFB, Washington, D.C. 20332.

American Mathematical Society Research Fellowship. Postdoctoral Fellowships. Open to citizens or permanent residents of a country in North America. Intended to support Research Fellows for one year and awarded on the basis of mathematical merit. Awards for 1980-1981 are to be $15,000 each plus $500 for expenses; application deadline for 1980-1981 awards is December 31, 1979. For further information and application forms write to Dr. William J. LeVeque, Executive Director, American Mathematical Society, P. O. Box 6248, Providence, Rhode Island 02940.

American Philosophical Society. Postdoctoral research grants of small amounts according to need, for candidates with Ph.D. or equivalent to aid specific research projects. Tenable abroad and in U.S. An application must reach the Society’s office at least eight weeks in advance of the meeting at which it is to be considered. The Committee on Research meets on the first Friday of February, April, June, October, and December. For information write to the American Philosophical Society, 104 South Fifth Street, Philadelphia, Pennsylvania 19106.

American Society for Engineering Education. NASA-ASEE Summer Faculty Fellowships. Engineering programs in research and design in collaboration with the National Aeronautics and Space Administration; for U.S. citizens who are faculty or research members, preferably with two years of teaching experience. Stipends are $425/week for ten or eleven weeks, plus travel allowance. Application deadline is February I. For information write to NASA-ASEE Summer Faculty Fellowships, American Society for Engineering Education, Suite 400, One Dupont Circle, N.W., Washington, D.C. 20036.
American Society for Engineering Education. USAF-, Navy-, and DOE-ASEE Summer Faculty Programs. To learn whether these programs are available for 1980 write to ASEE Summer Faculty Programs, American Society for Engineering Education, Suite 400, One Dupont Circle, N.W., Washington, D.C. 20036.

Argonne National Laboratory. Predoctoral, postdoctoral, and visiting scientist appointments in mathematics and computer science with an emphasis on applied analysis, numerical mathematics, automated program transformations, and automated theorem proving. Summer appointments available at undergraduate through visiting scientist levels. Contact: Richard J. Royston, Director, Applied Mathematics Division, Argonne National Laboratory, Argonne, Illinois 60439.

Australian Institute of Nuclear Science and Engineering, Research Fellowships. Fellowships are intended for scientists and engineers who have qualifications equivalent to the Ph.D. and are at a relatively early stage of an independent research career. Stipends are in the range of $13,000 to $17,000 per year (Australian currency), and the institute may contribute to travel costs to and from Australia. A research project within the field of nuclear science and engineering of interest to the institute must be proposed in the nomination after agreement between the candidate and the nominating organization. Further information can be obtained from Executive Office, Australian Institute of Nuclear Science and Engineering, Private Mail Bag, Post Office, Sutherland N.S.W. 2232, Australia. Candidates must be nominated by an Australian university or the Australian Atomic Energy Commission. Closing dates are February 28 and August 31 each year, and all nominations received after one closing date will be considered together after the next closing date.

Brookhaven National Laboratory. The Applied Mathematics Department of Brookhaven National Laboratory, operated by Associated Universities, Inc., under contract with the U.S. Dept. of Energy, from time to time offers a limited number of Research Associate appointments to Ph.D's. These are salaried positions, as distinguished from postdoctoral fellowships or stipends, and are limited to a total of two years. Large scale digital computing facilities, including a CYBER 70/76 and two CDC 6600 computing systems, are available for use by the appointees. Some areas of interest to the Department are probability and statistics, linear operator theory, differential and integral equations, numerical analysis and approximation theory, mathematical programming, and computer science. Inquiries should be directed to: Department Chairman, Applied Mathematics Department, Brookhaven National Laboratory, Upton, Long Island, New York 11973.

Congressional Science Fellowship. Sponsored jointly by the AMS-MAA-SIAM in cooperation with the AAAS, the fellowship offers a stipend of $19,000 for one year spent working on the staff of a congressman, a congressional committee or in the congressional Office of Technology Assessment. The applicant should be at the postdoctoral level, have a broad scientific and technical background, and have a strong interest in the uses of the mathematical and other sciences in the solution of societal problems. Further information on the general program can be obtained on request from Dr. Lyn Chambers, AAAS Congressional Science Fellow Program, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036. Applications with three letters of recommendation should be received by 15 February 1980 by the Conference Board of the Mathematical Sciences, 1500 Massachusetts Avenue, N.W., Suite 457-8. Washington, D.C. 20005.

Cottrell Research Grants. Awarded to help faculty members in the early years of their professional careers at degree-granting institutions conduct basic research of importance in the physical sciences and engineering. Support is normally given for items of direct expense to help initiate research. Although grants are usually made on a one-year basis, consideration may be given in certain circumstances to reapplication for additional support. Further information may be obtained from Research Corporation, Cottrell Research Grant Program, 405 Lexington Avenue, New York, New York 10017.

Courant Institute. Instructorships in Mathematics. Open to mathematicians (of any age) who are recent recipients of doctor's degrees who show strong promise in research. The teaching duty will consist of one course each term. Appointments are for two years. The academic salary for nine months will be at least $17,500. In addition, the Courant Institute may be able to offer support for research in residence during two summer months. (When longer term faculty positions are available, applicants for Instructorships will also be considered for them.) Inquiries and requests for application forms should be addressed to the Committee on Instructorships and Visiting Memberships, Courant Institute of Mathematical Sciences, New York University, 251 Mercer Street, New York, New York 10012. Applications should be filed no later than January 1, 1980. N.Y.U. is an Equal Opportunity Affirmative Action Employer.
Courant Institute. Postdoctoral Visiting Memberships. The Courant Institute of Mathematical Sciences of New York University offers postdoctoral Visiting Memberships to mathematicians, scientists and engineers who are interested in its program of training and research in a broad range of pure and applied mathematics. Applications for the academic year 1980-1981 must be submitted before January 1, 1980. Inquiries and requests for application forms should be addressed to the Committee on Instructorships and Visiting Memberships, Courant Institute of Mathematical Sciences, New York University, 251 Mercer Street, New York, New York 10012. N.Y.U. is an Equal Opportunity Affirmative Action Employer.

Department of State, Agency for International Development. Research grants for research projects and analytical studies on development policy issues emphasizing food production, nutrition, health, education, population, socio-economic and related issues. Research groups are encouraged to propose research to the Agency within the above areas. For further information, write to Mr. Barry Sidman, Policy Development and Program Review, Bureau for Program and Policy Coordination, Agency for International Development, Department of State, Washington, D.C. 20523.

L. E. Dickson Instructorships in Mathematics. Intended for men and women completing the doctorate in mathematics prior to 1980. Appointment is for two years with an annual salary of $17,850, instruction averaging four hours a week; supplementary summer salary can usually be arranged. Application deadline is January 11, 1980. Further information may be obtained from the Chairman, Department of Mathematics, University of Chicago, Chicago, Illinois 60637.

G. C. Evans Instructorships. Postdoctoral appointments for two-three years for promising research mathematicians with research interests in common with the active research areas at Rice. Applications should be in by 15 January 1980. Rice University is an Equal Opportunity/Affirmative Action Employer. Inquiries and applications should be addressed to Professor John C. Polking, Chairman, Department of Mathematics, Rice University, Box 1892, Houston, Texas 77001.

J. Willard Gibbs Instructorships. Offered by Yale University to men and women with the doctorate who show definite promise in research in pure mathematics. Applications from women and members of minority groups are welcome. Appointments are for two years. The 1979-1980 salary is $16,750; an increase is expected for 1980-1981. The teaching load is kept light so as to allow ample time for research. If desired, part of the teaching duties may consist of a one-semester course at the graduate level in the general area of the instructor’s research. Inquiries and applications should be addressed to the Gibbs Committee, Department of Mathematics, Yale University, Box 2155 Yale Station, New Haven, Connecticut 06520. Preference will be given to applications received before February 1980.

John Simon Guggenheim Memorial Foundation Fellowships. Fellowships are usually between thirty and forty-five years of age, but the Committee of Selection also is empowered to nominate persons older than forty-five and younger than thirty. Fellowships are on an advanced professional level. U.S. or Canadian citizenship or permanent residence is required. Fellowships are also offered to citizens or permanent residents of all countries and territories of the Western Hemisphere and of the Philippines. Application deadline: October 1. Approximately 300 awards are made, averaging approximately $16,000 in 1979. For more information write to Gordon N. Ray, President, John Simon Guggenheim Memorial Foundation, 90 Park Avenue, New York, New York 10016.

E. R. Hedrick Assistant Professorships in Mathematics. Department of Mathematics, University of California, Los Angeles, will make two appointments for the year 1980-1981. These awards will be made to mathematicians with Ph.D’s who show strong promise in research. The appointment will be for two years at an annual salary of $20,100, plus a summer research supplement of $2,500. The teaching load will be three hours per week for two quarters and six hours per week for one quarter. One course may be an advanced course in the candidate’s research area. Requests for application forms should be sent to the Chairman, Department of Mathematics, University of California, 405 Hilgard Avenue, Los Angeles, California 90024. The deadline for applications is January 15, 1980. UCLA is an Equal Opportunity/Affirmative Action Employer.

T. H. Hildebrandt Research Assistant Professorships. Designed to provide mathematicians with favorable circumstances for the development of their research talents. Preference given to persons of any age having their Ph.D. less than two years. At least one appointment is expected to be available for the coming academic year. Teaching load averages one and one-half courses per semester. Stipend at least $16,000 for academic year 1980-81 with good possibility of additional income during the summer. Application is for three years. Applicants should submit completed application form and
request at least three letters of recommendation. Letter should contain comments on applicant's mathematical promise, teaching ability, and personality. First preference will be given to applications completed, and supported by three or more letters, prior to January 2. Appointments will be announced by the middle of February. Applications should be made to Professor F. W. Gehring, Chairman, Department of Mathematics, the University of Michigan, Ann Arbor, Michigan 48109. Affirmative Action Employer.

Václav Hlavatý Research Assistant Professorships. Offered by the Department of Mathematics at Indiana University to mathematicians with doctorates who show definite promise in research. The appointment is for three years with an academic-year salary of at least $16,000. The teaching duties during the first academic year will involve three hours per week and during the next two academic years will involve six hours per week. The salary may be supplemented by either teaching or research contracts during the summer months. There will also be an amount of $400 available for professional expenses, such as travel to meetings, supplies, publication costs, etc. Inquiries or requests for application forms should be addressed to Professor Morton Lowengrub, Chairman, Department of Mathematics, Swain Hall East, Indiana University, Bloomington, Indiana 47401. Preference will be given to applications received before January 1, 1980. Affirmative Action Employer.

IBM Thomas J. Watson Research Center. Mathematical Sciences Department Postdoctoral Fellowships. These fellowships provide scientists of outstanding ability an opportunity to advance their scholarship while members of the Mathematical Sciences Department at the Research Center. The Department provides an atmosphere of basic research in pure and applied mathematics in an industrial context. A candidate will be expected to have a doctorate. The duration of each fellowship will be eleven months. Generally the stipend will be in the range of $24,000—$30,000, depending on qualifications. Completed applications should be received by January 15, 1980. At most two fellowships will be awarded. Notification will be made by March 15, 1980. Write to Director, Mathematical Sciences Department, IBM Thomas J. Watson Research Center, P. O. Box 218, Yorktown Heights, New York 10598.

IPA-DOT Research Fellow Program. The Intergovernmental Personnel Act provided for a temporary exchange of personnel between institutions of higher education and the U.S. Department of Transportation (DOT) for work of mutual concern and benefit. Assignments of up to one year are made at various locations in the DOT to do research on transportation and/or transportation-related problems. These problems involve complex issues concerning modal operations, intermodal conflicts, and the overall tenor of national transportation. The Research Fellow Program calls for proposals from qualified full-time faculty members at accredited universities or colleges about specific research areas of long-term problems which are defined by DOT and which need detailed study. For further information write to the U.S. Department of Transportation, Office of University Research, Research and Special Programs Directorate, Washington, D. C 20590.

Institute for Advanced Study Memberships. The School of Mathematics will grant a limited number of memberships, some with financial support, for research in mathematics at the Institute during the academic year 1980-1981. Candidates must have given evidence of ability in research comparable at least with that expected for the Ph.D. degree. Application blanks may be obtained from the Administrative Officer of the School of Mathematics, Institute for Advanced Study, Princeton, New Jersey 08540, and should be returned (whether or not funds are expected from some other source) by January 15, 1980. An Equal Opportunity/Affirmative Action Employer.

Institute for Computer Applications in Science and Engineering (ICASE). A limited number of visiting appointments are available for both junior- and senior-level researchers at the Institute for Computer Applications in Science and Engineering (ICASE) which is operated by Universities Space Research Association. ICASE serves as a center for interaction between Langley Research Center staff and the academic community in the areas of applied and numerical mathematics, applied computer science, and development of mathematical models in a variety of application areas. Applications for partial support while on sabbatical leave are encouraged, as are applications from Ph.D.'s for two-year renewable appointments. Inquiries should be addressed to the Director, ICASE, Mailstop 132C, NASA Langley Research Center, Hampton, Virginia 23665.

Lawrence Berkeley Laboratory. Occasional postdoctoral research appointments. Research areas of interest center on the development of numerical and analytical methods for partial differential equations, particularly those related to energy and environmental applications. Current applications
include combustion, turbulence, and multiphase flow in porous media. Inquiries should be directed to Dr. Paul Concus, Lawrence Berkeley Laboratory, Building 50A, Room 2129, University of California, Berkeley, California 94720.

Los Alamos Scientific Laboratory. Offered to U.S. citizens holding the Ph.D., with research opportunities in computer science, numerical science, and applied mathematics. A limited number of postdoctoral appointments are available for one year, subject to renewal for a second year. Los Alamos Scientific Laboratory is an equal opportunity employer. Write to Employment Office, Los Alamos Scientific Laboratory, University of California, P. O. Box 1663, Los Alamos, New Mexico 87545.

Los Alamos Scientific Laboratory. J. Robert Oppenheimer Research Fellowships. Candidates must be recipients of a doctorate in the physical sciences, natural sciences, mathematics or engineering, and must show clear and definite promise of becoming outstanding leaders in scientific research. One- to three-year appointment; salary: $27,000/yr; application deadline: December 31 each year. For additional information write to Employment Office, Div. JRO, Los Alamos Scientific Laboratory, P. O. Box 1663, Los Alamos, New Mexico 87545. An Affirmative Action/Equal Opportunity Employer.

Mathematics Research Center. A limited number of visiting research appointments at all levels from postdoctoral up, in areas of applicable or applied mathematics interpreted in a broad sense, but including analysis, numerical analysis and computing, probability and statistics, and operations research. The postdoctoral appointments offer Ph.D.'s working in areas of applicable mathematics an opportunity to broaden their contact with applications; 1980-81 will be a year of concentration in fluid dynamics at MRC. Qualifications include outstanding research ability or potential, as attested to by leading mathematicians in the candidate's field. The University of Wisconsin is an equal employment opportunity institution (Title IX/Title VI). For information write Professor John A. Nohel, Director, Mathematics Research Center, University of Wisconsin—Madison, Madison, Wisconsin 53706.

Andrew Mellon Postdoctoral Fellowships. Intended to support the research and foster the professional development of scholars who give promise of achieving distinction in their fields. Applicants should submit a completed application form, a research proposal, a list of publications, and three letters of recommendation. The Fellows are expected to be in residence at the University of Pittsburgh and to engage in research during their period of appointment; they have no other formal responsibilities. A basic stipend of $12,000 for eleven months, plus an allowance for traveling expenses (up to $200) and incidental costs (not to exceed $200), make up the award. Nine-month appointments are available for a stipend of $9,800. Applications may be obtained from the Director of Graduate Programs, Faculty of Arts and Sciences, University of Pittsburgh, Pittsburgh, Pennsylvania 15260.

C.L.E. Moore Instructorships in Mathematics. Offered by the Department of Mathematics at the Massachusetts Institute of Technology. Open to mathematicians with doctorates who show definite promise in research. The base salary will be at least $17,000, and the teaching load is six hours per week in one semester and three hours per week in the other. The appointments are annual but renewable for one additional year. Applications should be filed, by December 31 if possible, on forms obtained from the Department of Mathematics, 2-263, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139. M.I.T. is an Equal Opportunity Employer.

Oskar Morgenstern Distinguished Fellowship at Mathematica. The grant enables a member of the academic or research staff of a university, an official of the U.S. government, or a researcher elsewhere, to spend sabbatical leave at Mathematica. Applicants are expected to have achieved significant accomplishments in at least one of several areas, including computer programming languages, information management, operations research methods and applications, economic theory, economic and social policy analysis, survey research methodology, arms control, and national defense policy. Information may be obtained from President Tibor Fabian, Mathematica, Inc., P. O. Box 2392, Princeton, New Jersey 08540.

National Aeronautics and Space Administration. Research Grants. Through grants and contracts to educational and nonprofit institutions and industries, NASA sponsors research in fundamental and applied mathematics related to space science and engineering problems. Unsolicited proposals should be submitted to the University Affairs Office, Code LU-16, National Aeronautics and Space Administration, Washington, D. C. 20546.

National Center for Atmospheric Research. Advanced Study Program. Postdoctoral Fellowships are offered for highly qualified atmospheric scientists, and scientists from related disciplines, who wish
to continue basic research in the atmospheric sciences. Appointments are for a one-year period with a possible extension for an additional year. Stipends are $18,000 for recent recipients of Ph.D. The application deadline is January 15. Inquiries should be sent to Maurice Blackmon, Chairman, Advanced Study Program, NCAR, P.O. Box 3000, Boulder, Colorado 80307.

**National Research Council. Research Associateship Programs.** These programs provide scientists and engineers opportunities for postdoctoral research on problems in a variety of scientific disciplines and fields of specialization. The programs are conducted in cooperation with selected Federal organizations with laboratories at approximately sixty-five geographic locations in the United States. Applications for these competitive awards will be received by the National Research Council until January 15, 1980. Appointments will be made in the spring. Stipends, which are subject to income tax, will vary according to the type of appointment, but will not be less than $18,000. Further information and application materials can be obtained from the Associateship Office (JH 608M1), National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

**National Science Foundation. Computer Science Research.** Grants support research concerned with such topics as theoretical foundations of computer science; software systems science, software engineering, intelligent systems, and computer systems design. Guidelines on eligibility and proposal preparation are available in “Grants for Scientific Research.” For this brochure and additional information write: Computer Science Section, Division of Mathematical and Computer Sciences, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550.

**National Science Foundation. Postdoctoral Fellowships.** Approximately 50 fellowships for postdoctoral research and study. Open to U.S. citizens or nationals regardless of age with recent doctorates in science. The $13,800 stipend ($1,150 per month) provides for twelve months full-time-equivalent of full-time or part-time study and research at any appropriate U.S. or foreign institution. Deadline for filing applications is November 2, 1979. Applications may be obtained by writing the Fellowship Office, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

**National Science Foundation. Postdoctoral Research Fellowships in the Mathematical Sciences.** These fellowships provide a stipend of $15,000 per year for full-time research for a maximum of two years, with the purpose of providing talented mathematicians who are U.S. citizens or nationals with the opportunity to select research environments that will enable the recipients to accelerate their scientific development. Deadline for applications is January 1, 1980; awards will be announced March 1, 1980. Applications will be accepted in core mathematics, applied mathematics, and statistics. For further details write to William H. Pell, Program Officer for Special Projects, Mathematical Sciences Section, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550.

**National Science Foundation. Research in the Mathematical Sciences.** Proposals are accepted at any time, but in order to insure full consideration, proposals requesting research support which is to begin prior to November 1, 1980 should be in the hands of the Foundation six months prior to the desired starting date of such support, but not later than October 25, 1979. Instructions for the preparation of proposals, contained in a booklet entitled “Grants for Scientific Research” may be obtained upon request from the Mathematical Sciences Section, National Science Foundation, Washington, D.C. 20550.

**National Science Foundation. Science for Citizens Program.** Public Service Science Residencies are awarded to enable scientists and engineers to undertake up to a year's activities with citizen groups and other appropriate organizations in need of their expertise. Residents receive a stipend of $18,000 for a 12-month tenure, with current salary matched up to a maximum of $25,000. The deadline for applications is January 15. Requests for information should be directed to Office of Science for Citizens, Science Education Directorate, National Science Foundation, Washington, D.C. 20550.

**National Science Foundation. Science Faculty Professional Development Program.** Training opportunities for three- to twelve-month tenures in academic or nonacademic organizations for teachers of science, mathematics, or engineering in universities, colleges, or junior and community colleges. Approximately 80 awards will be made to faculty members who are citizens or nationals of the United States, have at least a baccalaureate, have had four or more years of full-time teaching experience, and hold an academic appointment in a United States college or university. Support includes stipend, travel allowance, and an assistance allowance to the tenure organization. The application deadline is December 3, 1979. Application materials can be obtained from the Faculty-Oriented Programs, Division of Scientific Personnel Improvement, National Science Foundation, Washington, D.C. 20550.
Zeev Nehari Instructorship in Mathematics. This Instructorship has been instituted in the Department of Mathematics of Carnegie-Mellon University to honor the memory of Professor Zeev Nehari, a member of this Department from 1954 to his death in 1978. Applicants are expected to show exceptional research promise as well as clear evidence of achievement. Each appointment is for two academic years, extendable for one further year when mutually agreeable. It carries only a small teaching requirement so that the successful candidate will be free to concentrate on research throughout the term of the Instructorship. The stipend for the academic year 1980-1981 will be at least $20,000. Application forms and further information on the Instructorship and the Department can be obtained by writing to: Chairman, Zeev Nehari Instructorship Committee, Department of Mathematics, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213. To ensure consideration, applications should be filed by February 1, 1980. Carnegie-Mellon University is an Equal Opportunity Employer.

Office of Naval Research. Supports research over a wide range of areas including mathematics, operations research, statistics and probability, information systems, and fluid dynamics. Proposals for research contracts and requests for information on ONR Programs should be addressed to: The Director, Mathematical and Information Sciences Division, Office of Naval Research, Arlington, Virginia 22217.

OTA Congressional Fellowships. The Office of Technology Assessment, an agency of the U.S. Congress, selects several Congressional Fellows each year for a fellowship period of one year. Candidates must have completed research and training at the doctoral level, or have equivalent experience as judged by the selection committee. The program is open to men and women in all disciplines of science and technology and related policy or research activities, and provides a challenging work experience through participation in policy analyses for the Congress involving the effects of technological applications. Application deadline is May 31 for the following fall. Salary is based on the Fellows’ current salary and/or training and experience. Application information can be obtained from: Congressional Fellowships, Office of Technology Assessment, Congress of the United States, Washington, D.C. 20510.

Benjamin Peirce Lectureships, Harvard University. Rank of Assistant Professor. The appointments are for three years with a starting salary of approximately $16,000 (for the nine-month academic year) which can be augmented by teaching in the summer school or by work on a research contract if funds are available. The teaching commitment is six hours per week of lectures including a half course on any topic of the lecturer’s choice. Application forms may be obtained by writing to: Benjamin Peirce Lectureships, Department of Mathematics, Harvard University, 1 Oxford Street, Cambridge, Massachusetts 02138. Applications must be filed by January 11, 1980. Harvard is an Equal Opportunity/Affirmative Action Employer.

Sloan Foundation. Unrestricted grants made to selected university scientists in the physical sciences (including mathematics) and in neuroscience. Candidates in the physical sciences must be members of the regular faculty, though not necessarily in a tenured position, at a recognized college or university in the United States or Canada. In neuroscience, postdoctoral fellows as well as those in junior faculty positions will be considered. Candidates do not apply but are nominated by their department chairmen or other scientists. For information write to the Alfred P. Sloan Foundation, 630 Fifth Avenue, New York, New York 10020.

Smithsonian Institution. Postdoctoral Fellowships. Appointments to individuals possessing the Ph.D. or equivalent degree, and limited to individuals requiring research training in association with a member of the Institution’s professional staff. Offered annually in the history of mathematics, for a period of from six months to one year. Twelve thousand dollars stipend, plus research expense allowance. Deadline for application is January 15th yearly for the following academic year. Further information and application forms may be obtained from the Office of Fellowships and Grants, Room 3300, L’Enfant Plaza, Smithsonian Institution, Washington, D.C. 20560.

State University of New York at Buffalo. George William Hill and Emmy Noether Research Instructorships for 1980-1981. Applicants should be Ph.D.’s whose degrees will be completed by September 1, 1980. All areas of pure and applied mathematics will be considered. Each appointment is for two years. The twelve-month stipend, beginning September 1980, is $16,200 plus generous staff benefits. Teaching load will total two one-semester courses during the twelve-month period. Upon expiration of the two-year appointment, priority consideration for a two-year (tenure-track) appointment as assistant professor will be given and will be based upon success and potential in both research and teaching. Each applicant should prepare a summary of his or her post-high school educational
background, as well as a sketch of past and projected research activity, and should request at least four mathematicians to send letters of recommendation. Application forms are available upon request. Applications and supporting letters should be sent to Dr. William Zame, Chairman, Hill-Noether Committee, Department of Mathematics, SUNY/Buffalo, 106 Diefendorf Hall, Buffalo, New York 14214, so as to arrive by January 20, 1980. SUNY/Buffalo is an Equal Opportunity/Affirmative Action Employer. We are interested in identifying prospective minority and woman candidates. No person in whatever relation with SUNY/Buffalo shall be subject to discrimination on the basis of race, ethnic background, national origin, religion, color, age, sex or condition of handicap.

Jacob David Tamarkin Assistant Professorships. Offered by Brown University to promising mathematicians. Appointments are for three years, with a salary of $15,500 for the academic year. Additional summer support may be arranged. Teaching load is six hours per week and consists of courses of more than routine interest. An applicant (regardless of age) should have completed the doctorate by July 1, 1980 and no earlier than July 1, 1978. In addition to a letter expressing interest in a Tamarkin Assistant Professorship, the applicant should have three letters of recommendation sent to the Department of Mathematics by January 15, 1980. Women and members of minority groups are encouraged to apply. Applicants should write to the Executive Officer, Department of Mathematics, Brown University, Providence, Rhode Island 02912.

U.S. Department of Energy (DOE). Special University-Laboratory Cooperation. Participants engage in laboratory-approved projects in a program designed to increase the interactions and flow of information between universities and DOE laboratories. Included is research in applied mathematics and computer science. Inquiries should be addressed to the Director at any of the following organizations: Associated Western Universities, 136 East South Temple (Suite 2200), Salt Lake City, Utah 84111; Argonne Center for Educational Affairs, 9700 South Cass Avenue, Argonne, Illinois 60439; Brookhaven National Laboratory, Upton, New York 11793; Northwest College and University Association for Science (NORCUS), 100 Sprout Road, Richland, Washington 99352; Oak Ridge Associated Universities, Oak Ridge, Tennessee 37830.

U.S. Department of Health, Education, and Welfare, National Institutes of Health. Supports postdoctoral training in specified areas of biomedical and behavioral research. Applicant must have earned an appropriate degree and arranged for appointment to an institution and acceptance by a sponsor who will supervise the training research experience. U.S. citizenship or lawful admittance to the U.S. for permanent residence is required. Announcements and application kits available from Office of Grants Inquiries, Division of Research Grants, National Institutes of Health, Bethesda, Maryland 20014. An enclosed self-addressed gummed mailing label will expedite handling.

University of Wisconsin-Madison. Van Vleck Assistant Professorships in Mathematics for 1980-1981. We invite applications from outstanding mathematicians who are recipients of a doctorate. We are looking for people who will interact well with members of our department, who care about teaching, and who can contribute to our research and instructional programs. The regular teaching load is two courses per semester, with at least one in your specialty every other year. There is a high probability of additional income through research or teaching during summers between consecutive years of appointment. The salary will be dependent on experience and will be at least $17,000 per academic year. All positions are for specified two- or three-year terms. Application blanks may be obtained by writing Professor Fred Brauer, Chairman, Department of Mathematics, 213 Van Vleck Hall, University of Wisconsin, Madison, WI 53706. University of Wisconsin-Madison is an Equal Opportunity Employer.

H. C. Wang Assistant Professorships. Research Assistant Professorships. During the first year the holder of a Wang Professorship will have a teaching load of two courses in the first semester and one in the second; thereafter, it will be two courses per semester. The professorships are nonrenewable after a three-year term, with remuneration expected to be approximately $17,000 per year in 1980-1981. Requests for applications should be addressed to Professor S. Lichtenbaum, Chairman, Department of Mathematics, Cornell University, Ithaca, New York 14853.

John Wesley Young Research Instructorships. Two instructorships are normally awarded by Dartmouth College each year. Teaching duties average six hours per week and are of a varied and nonroutine nature. The academic-year stipend of $15,000 is supplemented by a resident summer research fellowship of $2,500. Appointments are for two years and are not renewable. Applicants should write to Donald L. Kreider, Chairman, Department of Mathematics, Dartmouth College, Hanover, New Hampshire 03755 (Attention: RECRUITING). Applicants are advised to apply promptly, and no later than January 15, 1980.
Travel and Study Abroad

The African-American Institute. Seeks to further African development and to strengthen understanding between the United States and Africa. For information about the several programs contact African-American Institute program representatives in twenty-one African countries, relevant African ministries or universities, or The Division of Education, African-American Institute, 833 United Nations Plaza, New York, New York 10017, U.S.A.

Alliance Française de New York. For U.S. Nationals, a limited number of scholarships for graduate study in France. Fields unrestricted. Scholarships are in the amount of $2,000. Applicants must have a working knowledge of French. For further information American students should write to Institute of International Education, Division of Study Abroad Program, 809 United Nations Plaza, New York, New York 10017.

American-Scandinavian Foundation. Fellowships for study in Scandinavia (Denmark, Finland, Iceland, Norway, and Sweden). Applicants must have completed their undergraduate education. Necessary language competence, financial need, and merit in pursuing the study program in Scandinavia are considered in making these awards. Completed application deadline is November 1. Write to the Exchange Division, The American-Scandinavian Foundation, 127 East 73rd Street, New York, New York 10021.

E. D. Bergmann Memorial Research Grants. Two grants awarded annually by the United States-Israel Binational Science Foundation to one American and one Israeli scientist, for research to be conducted in Israel. Support will be for a two-year period. Applicants must have completed their doctoral degrees. Application forms and guidelines are available from the National Science Foundation, Division of International Programs (United States-Israel Binational Science Foundation), Washington, D.C. 20550. Completed applications should be sent directly to the United States-Israel Binational Science Foundation, P. O. Box 7677, Jerusalem. Application deadline is November 1 each year.

Lady Davis Fellowship Trust. Fellowships for study and/or research at graduate or postdoctoral levels at the Hebrew University of Jerusalem and the Technion—Israel Institute of Technology, Haifa. Lady Davis Fellows will be selected on the basis of demonstrated excellence in their studies, promise of distinction in their chosen fields of specialization and qualities of mind, intellect and character. The Fellowships are tenable for a period of one year. They may be renewed for a second year and in special circumstances extended for a third year. They are intended to defray travel and tuition fees and to meet reasonable living expenses. Deadline for completed applications is January 1, 1980. Application forms can be obtained from the Lady Davis Fellowship Trust, P. O. Box 1255, Jerusalem, Israel.

Lady Davis Visiting Professorships. Lady Davis Visiting Professorships, for periods from one trimester (or semester) to a full academic year, are intended for candidates with the rank of Full or Associate Professor at their own institution. Such Visiting Professors are appointed after consultation with the appropriate Faculties of the Hebrew University of Jerusalem or the Technion—Israel Institute of Technology, Haifa. The grant includes a professional salary and cost of travel. Deadline for completed applications is November 30 for Hebrew University, December 31 for Technion. Application forms can be obtained from the Lady Davis Fellowship Trust, P. O. Box 1255, Jerusalem, Israel.

Fulbright-Hays Program. Grants for Graduate Study Abroad. For graduate study or research in any field in which the project can be profitably undertaken abroad. Applicant must be a U.S. citizen and have language proficiency sufficient to carry out the proposed study and to communicate with the host country. If an applicant is already enrolled in a U.S. university, he must apply directly to the Fulbright Program Advisor on his campus. Unenrolled students may apply to the Institute of International Education. Further details may be obtained from the Study Abroad Programs, Institute of International Education, 809 United Nations Plaza, New York, New York 10017.

Fulbright-Hays Program. Postdoctoral Awards. United States Government grants available annually in all fields for university lecturing and postdoctoral research abroad. Eligibility requirements include U.S. citizenship; for lecturing, college teaching experience; for research, a doctoral degree or recognized professional standing at the time of application. In certain cases a knowledge of the language of the host country is required. Grants are generally tenable for one academic year in one designated country and include round-trip transportation for the grantee and in many cases one dependent, maintenance allowance to cover living expenses of grantee and family, and a small
Alexander von Humboldt Foundation. Research Fellowships. Provides postdoctoral scholars with the opportunity of carrying out a research project at a university or other research institute within the Federal Republic of Germany and Berlin (West). Scholars of all nationalities and disciplines may apply. Selection is based exclusively on academic merit. Applicants must have completed their academic studies, have evidence of a degree equivalent to the German doctorate, and for research in the humanities, have adequate knowledge of German. Applications may be obtained from and returned directly to the Alexander von Humboldt Foundation, Jean-Paul-Strasse 12, D-5300 Bonn-Bad Godesberg, Federal Republic of Germany.

Indo-American Fellowship Program. Twelve grants to be awarded to U.S. citizens for advanced research in India, for six- to ten-month periods during the academic year 1980-1981. In addition to a basic grant there are travel, dependent and research allowances. Also up to nine shorter grants (two- to six-months) for research and/or professional activity. Applications are encouraged for projects which include collaboration with Indian colleagues. Applications will be accepted from scholars living in European countries for research in India, for six- to ten-month periods during the academic year 1980-1981. Write to Council for International Exchange of Scholars, Suite 300, 11 Dupont Circle, Washington, D.C. 20036.

Italian National Research Council Fellowships for Foreign Citizens. The Italian National Research Council announces five fellowships (maximum period one year) for foreign mathematicians. The stipend is 370,000 Italian Lire per month, plus travel expenses to and from the country of residence. Prospective applicants may write for details to: Alessandro Figà-Talamanca, C.N.R., via Santa Maria 13A, 50139 Firenze, Italy. In their letter they should include information concerning their curriculum, their research program, the names of the Italian mathematicians they would like to work with. They may also include a reference letter or have it sent directly.

Solomon Lefschetz Research Instructorships. Offered to mathematicians with doctorates who show definite promise in research. Appointments are for one year, with possibility of renewal for a second year, with salary equivalent to that of an Assistant Professor at the Mathematics Department. An allowance for moving expenses is also made. A knowledge of Spanish is desirable, but not necessary. Deadline for applications is January 30. Inquiries or requests for applications should be addressed to: Lefschetz Instructorships, Mathematics Department, Centro de Investigacion del IPN, Apartado Postal 14-740, Mexico, D.F. Mexico.

Marshall Scholarships. Offered by the British Government to U.S. graduates; tenable at any university in the United Kingdom. Recipients of awards are required to take a degree at their British university. Fields unrestricted. Apply through British Consulates-General in the following regions (1) Northeast: Suite 4740 Prudential Tower, Prudential Center, Boston, Massachusetts 02199; (2) Mideast: 12 South 12th Street, Philadelphia, Pennsylvania 19107; (3) South: Suite 912, 225 Peachtree Street, N.W., Atlanta, Georgia 30303; (4) Midwest: 33 North Dearborn Street, Chicago, Illinois 60602; (5) Pacific: 9th Floor, 120 Montgomery Street, San Francisco, California 94104.

National Academy of Sciences. For U.S. scientists who wish to make visits beginning during the period September 1980 through August 1981 in the USSR, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania or Yugoslavia. Visits of five to twelve months' duration are encouraged; a limited number of openings for one-month visits is also available. Requirements are U.S. citizenship and a Ph.D. or its equivalent in the mathematical sciences. All necessary expenses will be met by the NAS and the foreign academy; salary reimbursement up to a predetermined maximum and paid expenses for accompanying family on visits of five months or more. Application deadline is in November. For further information, write to the National Academy of Sciences, Commission on International Relations, USSR/EE, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

National Research Council of Canada. Visiting Fellowships. The Government of Canada offers Fellowships on behalf of the following Canadian Government Departments and Agencies: Agriculture
Canada; Department of Communications - Communications Research Centre; Department of National Defence; Energy, Mines and Resources Canada; Environment Canada - Atmospheric Environment Service; Environmental Management Service - Canadian Forestry Service, Inland Waters Directorate, Lands Directorate; Environmental Protection Service - Air Pollution Control Directorate; Department of Fisheries and Oceans - Fisheries Atlantic, Fisheries Pacific and Freshwater, Ocean and Aquatic Sciences; Health and Welfare Canada - Health Protection Branch; National Museums of Canada - Museum of Natural Sciences; National Research Council Canada; Atomic Energy of Canada Limited. The annual value of the fellowships is $16,777, subject to Canadian income tax. The initial appointment is for one year, with a possibility of renewal for a second year. The applicant should hold a doctorate degree, or a master’s degree plus appropriate research experience. The closing date for applications is January 15 each year. Write to the Scholarships Officer, Natural Sciences and Engineering Research Council Canada, Montréal Road, Ottawa, Ontario, Canada K1A OR6.

**National Science Foundation.** Support for U.S. participation in seminars, research projects, and visiting scientist activities under bilateral programs with certain foreign countries. For brochure about these and other NSF international programs write: Division of International Programs, National Science Foundation, Washington, D.C. 20550.

**National Science Foundation.** Summer travel grants for U.S. citizens who are advanced graduate students or within three years of the receipt of their Ph.D. to attend North Atlantic Treaty Organization (NATO) Advanced Study Institutes in Europe. Applications are made to the appropriate NATO Institute Director. Information may be obtained by writing to NATO Travel Awards, Division of Scientific Personnel Improvement, National Science Foundation, Washington, D.C. 20550.

**National Science Foundation.** Scientists and Engineers in Economic Development (SEED) Program. Specially funded by the Agency for International Development, the program will provide support for qualified U.S. scientists and engineers to apply their experience to specific problems of development in forty-eight countries. Stipends of up to $1,500 per month awarded with research/teaching grants. International travel grants also available. Limited to U.S. scientists and engineers with at least five years of postdoctoral or equivalent experience in teaching or research and who will return to their institutions on completion of the project. Proposals must be submitted before December 1, 1979 or June 1, 1980. Awards will be announced during May 1980 or November 1980. For more information, write to the Division of International Programs, National Science Foundation, Washington, D.C. 20550.

**North Atlantic Treaty Organization.** The NATO Science Committee has a Research Grants Programme which provides financial aid for research projects aimed at stimulating, encouraging and facilitating scientific research in collaboration between scientists working in different member countries of the Alliance, thus promoting the flow of ideas and of experimental and theoretical methods across frontiers. Projects are supported for a limited period usually not exceeding three years, covering mainly travel and living expenses abroad for principal investigators visiting partner laboratories or for staff members needing to acquire or provide expertise or special training in the partner laboratory(ies). Deadlines for applications are 15 January, 30 April and 15 September. The NATO Science Committee also makes a number of awards each year for training and education in fields in the systems science area. (1) Graduate Degree Apprenticeship in Systems Science. To enable beginning scientists to pursue graduate programmes leading to advanced degrees in fields in the systems science area (Systems Analysis, Operational Research, Management Science, Management Engineering, Systems Engineering, etc.) and also to obtain practical training in places where they will be exposed to real life problems. A normal grant is for three years, subject to satisfactory progress in each year, and is applicable to participating universities and institutions. Applicants should have first degree level of university education with very high scholastic achievement and a sound basic training in mathematics relevant to the systems field. The award is a yearly stipend to cover living expenses, tuition and other expenses, but not to exceed B.fr. 240,000 per year. (2) Study Visits. This programme is designed for scientists of NATO countries to make short visits to scientists and/or institutions in other NATO countries, with the objective of receiving expert advice in connection with a research project and a well-defined problem in the systems science area. (3) Visiting Experts. This programme is designed to help developing or newly formed systems science groups in NATO countries, which are active in fields in the systems science area and are in need of receiving advice or assistance from an expert in another country. It is applicable in cases where visiting scientists can make a substantial contribution to the work of the organization being visited. Application forms and further details of these awards together with information about the Science Committee’s other programmes can be obtained from: Scientific Affairs Division, NATO, 1110 Brussels, Belgium.
North Atlantic Treaty Organization. Postdoctoral Fellowships. Awarded for six- to twelve-month periods, for scientific study or work at appropriate nonprofit institutions in NATO countries, other than the U.S., or countries that cooperate with NATO. This program is for citizens or nationals of the U.S. Fellows receive a stipend of $13,800 for twelve-month tenure, plus dependency and travel allowances. Application deadline is early November. For information and application material, write to Division of Scientific Personnel Improvement, National Science Foundation, Washington, D.C. 20550.

Organization of American States. See entry in section on Study in the U.S. for Foreign Nationals.

The Rhodes Scholarships. For U.S. citizens; tenable at Oxford University. Selection is made on four criteria: scholarship, character, leadership, and physical vigor. Information is available through the applicant's college or university, or from The Rhodes Scholarship Office, Wesleyan University, Middletown, Connecticut 06457.

Rotary Foundation. Graduate Fellowships and Undergraduate Scholarships. One academic year of study abroad for the 1980-1981 year is available to outstanding men and women who are interested in world affairs and who can fulfill a dual role of scholar and "ambassador of good will." Graduate fellowships and undergraduate scholarships cover full transportation, education, living, and miscellaneous expenses for one academic year, plus, in certain cases, a period of intensive language training in the study country prior to the commencement of the regular academic year. Awards are made for study in any field and are tenable in more than 151 countries in which there are Rotary Clubs. An applicant for a graduate fellowship must have obtained a bachelor's degree or equivalent prior to the beginning of the fellowship year. An applicant for an undergraduate scholarship must have completed two years of university level work but not have obtained a bachelor's degree prior to the beginning of the scholarship year. Application must be made through the Rotary Club nearest to the applicant's permanent residence not later than March 1, 1980.

Royal Norwegian Council for Scientific and Industrial Research. Postdoctorate Fellowships. Fields: engineering and applied sciences. Studies can be carried out at the Universities of Oslo and Bergen, the Technical University of Norway, and at different institutes for applied research in Oslo, Bergen, and Trondheim. English may be used at all institutes; German and French at some institutes. Deadline each year is December 1. Write to Royal Norwegian Council for Scientific and Industrial Research, Sognsveien 72, Oslo 8, P.O. Box 70, Tåsen, Oslo 8, Norway.

United States-India Exchange. Grants travel support to senior mathematicians of the United States for periods from two weeks to a few months, for work in India with Indian colleagues on projects of mutual interest. Applications should be submitted before March 15 for visits commencing after November 15 of the same year and September 15 for visits after May 15 of the following year. For information and application forms write to: U.S.-India Exchange of Scientists, Division of International Programs, National Science Foundation, Washington, D.C. 20550.

Weizmann Institute of Science. Feinberg Graduate School Postdoctoral Fellowships. The Fellowships provide a twelve-month stipend of approximately IL 180,000 per annum, a small relocation allowance and one-way economy class air fare. There is a possibility of renewal for a second year. The main areas of research are pure and applied mathematics; computer science and engineering; geophysics; and systems theory. Applications are considered twice a year, deadlines being November 15 and May 15. Application forms and additional information may be obtained from the Feinberg Graduate School, The Weizmann Institute of Science, Rehovot, Israel.

Study in the U.S. for Foreign Nationals

Many of the programs in the Graduate Support and Postgraduate Support sections are also applicable to Foreign Nationals.

Alliance Française de New York. For French students, a limited number of scholarships for graduate study in the U.S. Fields unrestricted. Scholarships are in the amount of $1,500 to $3,000. Applicants must have a working knowledge of English. For further information, write to Commission Franco-Américaine d'Echanges Universitaires et Culturels, 9, rue Chardin, Paris, 75016, France.
American-Scandinavian Foundation. Scandinavian scholars are awarded graduate fellowships to study in the U.S. For information write to the Exchange Division, The American-Scandinavian Foundation, 127 East 73rd Street, New York, New York 10021.

Fulbright-Hays Program. Grants under the Fulbright-Hays Act for study, research, teaching and lecturing in the United States are available to nationals of many countries. Information regarding these opportunities may be secured from the Cultural Affairs Officer of the United States Embassy or from the binational Educational Commission or Foundation if there is one in the inquirer's own country. (U.S. address: Council for International Exchange of Scholars, 11 Dupont Circle, Washington, D.C. 20036, for post-doctoral candidates; Study Abroad Programs Division, Institute of International Education, 809 United Nations Plaza, New York, N.Y. 10017, for pre-doctoral candidates). The number of grants for each academic year will depend on funds available.

Institute of International Education. Open to nationals of most countries. Develops and administers exchange programs for a number of organizations and corporations, and administers U.S. Government grants under the Fulbright-Hays Act under the educational exchange program of the International Communication Agency. For information contact the Selection Committee in the candidate's own country (address may be obtained from the United States Embassy or Consulate).

Kennedy Scholarships. For citizens of the United Kingdom and Colonies, these grants are for graduate study at Harvard University or the Massachusetts Institute of Technology. Application deadline is November I. Write to Secretary, Kennedy Memorial Trust, Association of Commonwealth Universities, 36 Gordon Square, London WC I H OPF, England.

Kosciuszko Foundation. One-year grants to doctoral and postdoctoral students. Applicants must be Polish citizens and have excellent command of English. Apply by January 15 for the following academic year. Write to Scholarship and Exchange Programs, The Kosciuszko Foundation, 15 East 65th Street, New York, New York 10021.

Organization of American States (OAS). Fellowships are available to citizens or permanent residents of OAS member countries for advanced study or research in another member country. For information write to Chief, Trainee Selection Unit, Organization of American States, Washington, D.C. 20006, U.S.A.

U.S.-India Exchange. Grants for Indian scientists invited to the U.S. by U.S. institutions. Information can be obtained from the Council of Scientific and Industrial Research (CSIR), New Delhi, India.

Sources of Fellowship Information

Many of the publications listed below are probably available at school, or college and university libraries, or in the Reference Room of a good public library.


Basic Facts on Foreign Study. A fact sheet on what to expect on a study-abroad program and where to find pertinent information; 1979, 4 pp., single copies free. Information Services Division, Institute of International Education, 809 United Nations Plaza, New York, New York 10017.

Council on International Educational Exchange. Opportunities for travel and study abroad for undergraduate and graduate students, including language programs at Leningrad State University.
Write to the Council on International Educational Exchange, 205 East 42nd Street, New York, New York 10017.


The Foundation Center, 888 Seventh Avenue, New York, New York 10019, provides free library service and publishes information about U.S. foundations, and the grants they award including the biennial publication, Foundation Grants to Individuals, 2nd edition, $15.


Graduate Programs and Admission Manual (Published Annually). Educational Testing Service, P. O. Box 2606, Princeton, New Jersey 08540. Four volumes, $16 per set; Volume C (Physical Sciences, Mathematics, and Engineering), $4.


Guide to Science Education Programs. Pamphlet describing educational programs of the National Science Foundation in four major divisions of educational concern: Science Education Resources Improvement, Scientific Personnel Improvement, Science Education Development and Research, and the Office of Science and Society. In each program described under these divisions, a summary is
given of the program's purpose with the type of activities encompassed, eligibility requirements, and the identifying brochure number to request a detailed description of the particular program. Request brochure SE 80-1 from the National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550.


**IREX, The International Research and Exchanges Board.** Programs administered by IREX include exchanges for a semester or an academic year with the USSR and Eastern Europe, grants to promote new exchanges, and collaborative projects in the social sciences and humanities, preparatory fellowships, and language programs. The IREX programs provide access to Soviet universities, and also provide access at the predoctoral level to East European and Soviet universities and East European academies of sciences. For a program announcement describing the full range of IREX programs, write to the International Research and Exchanges Board, 655 Third Avenue, New York, New York 10017.


**National Endowment for the Humanities.** The Endowment operates through three programs. Information about the Endowment's fellowship programs which may be of particular interest may be obtained from Dr. James H. Blessing, Division of Fellowships, National Endowment for the Humanities, 806 15th Street, N.W., Washington, D.C. 20506.

**National Register of Scholarships and Fellowships.** The new (6th) edition is in preparation; price: $30.00, paper. World Trade Academy Press, 50 East 42nd Street, New York, New York 10017.

**Scholarships, Fellowships and Loans News Service.** The Staff, Bellman Publishing Company, P. O. Box 164, Arlington, Massachusetts 02174, published quarterly, $24.00 per year. Up-to-date information regarding student financial aid. Annotated bibliography of books and professional journals.

**Selected List of Major Fellowship Opportunities and Aids to Advanced Education for United States Citizens.** Publications Office, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550. Contains a list of fellowships available on the undergraduate, graduate, and postdoctoral levels plus a bibliography giving other sources of information on fellowships, scholarships, and loans.

**Selected List of Major Fellowship Opportunities and Aids to Advanced Education for Foreign Nationals.** Publications Office, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550. Contains a list of financial aid sources plus a bibliography listing other sources of financial aid information.

**Social Science Research Council. International Doctoral Research Fellowship Program.** The program provides support to advanced doctoral candidates at U.S. and Canadian universities for dissertation research in Africa; the Near and Middle East; East, South and Southeast Asia; Western Europe; Latin America, and the Caribbean. Full information on this program may be obtained by writing to the Social Science Research Council, Fellowships and Grants, 605 Third Avenue, New York, New York 10016.

**Student Aid Annual, 1979-1980.** Catalog No. 502A. $12.00 cash with order or formal purchase order. Chronicle Guidance Publications, Inc., P.O. Box 271, Moravia, New York 13118. Provides information on financial aid programs available to undergraduate, graduate, and postgraduate students, including programs sponsored by private organizations and foundations, state and federal government sources, and national and international labor unions, both AFL-CIO affiliated and independent. Revised annually.


Teaching Abroad. $6.00. Covers teaching programs conducted by U.S. and foreign governments, multinational agencies, international corporations and voluntary organizations; gives program details and requirements, application procedures, benefits; 87 pp. UNIPUB, 345 Park Avenue South, New York, New York 10010.


PROCEEDINGS OF THE STEKLOV INSTITUTE

C-TYPES OF n-DIMENSIONAL LATTICES
AND 5-DIMENSIONAL PRIMITIVE
PARALLELOHEDRA (WITH APPLICATION TO
THE THEORY OF COVERINGS)
S. S. Ryškov and E. P. Baranovskii

This monograph is devoted to one of the domains of discrete geometry. A new approach is given to the classification problem for n-dimensional parallelohedra as well as a solution of this problem for $n=5$. As an application, the problem of least dense lattice covering of five-dimensional Euclidean space by equal spheres is solved.

Number 137(1976)
140 + iv pages
List price $40.00; institutional member price $30.00;
Individual member price $20.00
ISBN 0-8218-3037-6; LC 78-21923
Publication date: December 15, 1978
To order, please specify STEKLO 137

LECTURES ON MATHEMATICS IN THE LIFE SCIENCES

SOME MATHEMATICAL QUESTIONS IN
BIOLOGY. IX
edited by Simon A. Levin

This volume contains lectures given at the Eleventh Symposium on Some Mathematical Questions in Biology, held in Denver, Colorado, on February 24-25, 1977, in conjunction with the Annual Meeting of the American Association for the Advancement of Science. The Symposium was supported by the National Institutes of Health and cosponsored by the Society for Industrial and Applied Mathematics and the AMS.

The contents of the volume are as follows:
John Guckenheimer, Comments on Catastrophe and Chaos
J. F. G. Auchmuty, Qualitative Effects of Diffusion in Chemical Systems
D. Marr, Representing Visual Information
Ronald M. Shymko, Control of Mitosis and Tissue Growth in Three Dimensions
Stuart A. Kauffman, Ronald M. Shymko and Kenneth Trubert, Control of Sequential Compartment Formation in Drosophila

Volume 10
244 + ix pages
List price $11.20; Institutional member price $8.40;
Individual member price $5.60
ISBN 0-8218-1160-6; LC 77-25086
Publication date: December 15, 1978
To order, please specify LLSCI 10

Prepayment is required for all American Mathematical Society publications.
Send for the book(s) above to: AMS, P.O. Box 1571, Annex Station, Providence, RI 02901.

597
There is no other book which covers, from the point of view of representations, the major recent developments in the study of automorphic forms, and of their relations with algebraic number theory and arithmetic algebraic geometry. It contains reviews of the structure theory of reductive algebraic groups and of some aspects of infinite dimensional representations of reductive groups over local fields, some background material in algebraic number theory, and a number of expository papers on the main topics of the institute. Most authorities on the book's subject matter have contributed to the book.

This book should appeal to mathematicians interested in automorphic forms, infinite-dimensional representations, non-abelian class field theory, Artin L-functions, arithmetical algebraic geometry, and Shimura varieties. Readers are assumed to be familiar with the formalism of idèles and adèles in algebraic number theory, and with Lie groups and Lie algebras. They can be expected to gain knowledge of recent results, basic techniques, and open problems in the subject matter.
INDEX OF ABSTRACTS
Volume 26 (1979)


ABRAMOVIC, Ju. and GEJLER, V. On the one question of D. Fremlin, A-273.

ABRAMOVIC, Ju. and ZAI DENBERG, M.G. Rearrange-ment invariant spaces, A-207.

ABU-MUHANNA, Yusuf and MacGREGOR, Thomas H. Variability regions for bounded, analytic functions and related extremal problems. A-381.


ADAMS, William W. On a relationship between the convergents of the nearest integer and regular continued fractions, A-542.

ADOLPHSON, Alan and SPERRER, Steven. Exponential sums on the complement of a hypersurface, A-456.


AHLMN, Patrick. Inner functions whose derivatives have bounded characteristic, A-465.


AHLMN, Calvin D. See LEWIS, Roger T.


AHNER, John F. and KAHANE, Charles S. On an integral equation for the electrified disk, A-207.


AHUJA, O.P. See JAIN, P.K.


AKIBULUT, Selman. Some local aspects of the topology of real algebraic varieties, A-350.

--- See TAYLOR, L.R.


AKIS, Vladimir N. An example of a countable, Hausdorff and connected space with no dispersion points, A-18.


ALBERTSON, Michael O. Coloring toroidal graphs, A-404.


ALEX, Leo J. The Diophantine equation $3a + 5b = 7n + 119$, A-454.


ALEXANDER, Kenneth and GOODMAN, Victor. Quadratic convergence and almost sure convergence of sums of independent random variables, A-130.

ALEXANDER, Ralph. Metrics on $R^n$ which possess a Crofton Formula. Preliminary report, A-278.


ALEXANDER, Stephanie. See ALEXANDER, Ralph.


ALLEN, Allen D. Statistical simultaneity, theory and experiment; Implications for symmetry, A-227.


thermal conductivity, A-466.

BERG, Gordon. Constructive dimension theory, A-120.

BERGER, Charles A. With HOPF operators on $U_2$, A-256.


BERGER, Selman A. See GRAFF, Samuel M.

BERGER, John F. Problems about semitopological semigroups, A-316.

BERGMAN, George M. Hyperidentities of groups and semigroups, A-428.


BERMAN, Joel. See KINER, Steve.

BERMAN, Lawrence. Quadratic forms and power series fields, A-240.

BERNDT, Bruce C. Chapter 14 of Ramanujan's second notebook, A-33; Chapter 14 of Ramanujan's second notebook, A-129.


BEY, F. Rudolf. Isoclinisms of group extensions and the Schur multiplicator, A-204.

BHAT, R. See POMANAUNAN, K.S.

BHARUCH-REID, Albert T. and BERNDT, Bruce C. Chapter 14 of Ramanujan's second notebook, A-453.

BHASKARAN, M. Local norms are global norms for cubic extensions, A-421.


BIRKENMEIER, Gary F. Reduced and densely nil right ideals. Preliminary report, A-94.

BIRKENMEIER, Gary F. Reduced and densely nil right ideals. Preliminary report, A-52; Baer rings and rings with a minimal direct summand containing the nilpotents, A-328.


BIRKENMEIER, Gary F. Reduced and densely nil right ideals. Preliminary report, A-52; Baer rings and rings with a minimal direct summand containing the nilpotents, A-328.


BIRD, Charles. See AZOFF, Edward.

BIRMAN, Joan and SAVKIN, A. Weak topology on sequence spaces, A-468.


BISHOP, Richard L. Cylindricity of infinitesimal deformation of hyperplanes, A-118.

BLACKADAR, Bruce E. A $C^*$-algebra counterexample, A-382.


BRANDAL, Willy and ANDERSON, David F. Constructing FEG domains, A-624.


BRAY, David F. Constructing $FEG$ domains, A-624.

BRUAIER, George U. Weak topology on sequence spaces, A-468.

BRENNER, James E. Approximation in the mean and analytic continuation, A-463.


BRESSAUD, D.M. Partition theory and $q$-orthogonal polynomials, A-33.


BREWER, James. Infinite groups acting on $D[[X]]$, A-624.
problem for a cylinder, A-546.


COMERFORD, Leo P., Jr. Quadratic equations over small cancellation groups, A-460.

COMERFORD, Leo P., Jr. and EDMUNDS, Charles C. Quadratic equations over free products of groups, A-57.


CONNELLY, Robert and HENDERSON, David W. A convex 3-complex not simplicially isomorphic to a strictly convex complex, A-559.

CONNER, Lili. See STANFORD, D.P.


CULLINANE, Steven Hamilton. Symmetry invariance in four quaternion algebras, A-235.

DAFfer, P. Z. On compact convex subsets of D[0, 1], A-132.

DAIvAN, Victor. Characterizations of a spherical curve in space-time, A-434; Entropy of an ideal thermometric system, A-520.

DAIKOW, Bruce L. See KENDALL, Richard P.

DALE, Richard P. Positive definite functions on the free group, A-635.

DAVIES, S.W. An isocompact space which is not isosparacompact. Preliminary report, A-636.

DAVITT, Richard M. On the automorphism group of a finite p-group with a small central quotient, A-57.


DEBNATH, Lokenath and BASU, Uma. Capillary-gravity waves against a vertical cliff, A-139.

DEBNATH, Lokenath and CHAKRAVORTY, Madhabala. Anisotropic surface waves on a viscous liquid under uniform magnetic and current fields, A-487.


DE HAAN, L. See BALKEMA, A.A.

de JETER, Italo J. Coefficients of paracyclictomic polynomials, A-375.

DE KONINCK, Jean-Marie. Sums of reciprocals of certain additive functions, A-505.


DE LUCA, Aldo and RESTIVO, A. A characterization of strictly locally testable languages and its application to subsemigroups of a free semigroup, A-501.


DEO, C.M. A strong convergence theorem for stationary Gaussian sequences in a Hilbert space, A-345.

DEO, C.M. A strong convergence theorem for stationary Gaussian sequences in a Hilbert space, A-345.

DEO, C.M. A strong convergence theorem for stationary Gaussian sequences in a Hilbert space, A-345.
ENDCHS, Edgar E. Flat envelopes and injective covers, A-625.
ENTRINGER, Roger C. See CLARK, L. See GOLDSMITH, Donald L.
ERDELYI, I. Spectral resolutions of operators with disconnected spectra, A-301.
ERDOS, J.A. See AKIEN, J.G.
ESTENS, Matts and SHEA, Daniel F. Integrability of the conjugate function, A-580.
ESTES, Dennis R. and MATJEVIC, Jacob R. Local-global criteria for outer product rings, A-45.
EVANS, Kenneth W. and SLATER, Morton L. A unified treatment of the monotone cone theorems of measure theory, A-452.
FABER, V. See ERDOS, P.
FARMER, Frank D. The homology of language ordered by embedding, A-645.
FAUDEE, R.J., ROUSSEAU, C.C., and SCHELPI, R.H. All triangle-graph Ramsey numbers for connected graphs of order six, A-568.
FAUDEE, R.J., ROUSSEAU, C.C., SCHELPI, R.H. and ERDOS, P. On the extremal problem for complete bipartite graphs, A-449.
FAUDEE, R.J., ROUSSEAU, C.C., SCHELPI, R.H. and SCHUSTER, Seymour. Panorarnoal graphs, A-449.
FAUDEE, R.J., SCHELPI, R.H., and SHEHAN, J. Ramsey numbers for matchings, A-568.
See THOMAS, Barbara Smith.
FEDERONICZ, Alexander J. Asymptotic solutions to engineering design problems, A-141.
FEFFERMAN, Robert. See CHANG, Sun-Yung A.
FEGAN, Howard D. Macdonald's identities and the heat equation, A-82.
FEIN, Burton and SCHACHER, Murray. Strong crossed product division algebras, A-399.
FEINSILVER, Philip. An analytic approach to multivariate probability distributions, A-316.
See BARRETT, Wayne W.
FEIRING, Bruce R. An exact, piecewise differentiable, parameter-free penalty function, A-488.
FERGUSSON, Pamela A. Finite complex linear groups of degree q-1/2, A-44.
FERRY, Steven C. The converse of the Vietoris-Smale theorem and strong shape theory, A-319.
FEUSTEL, C.D. See BROWN, E.M. A-349.
FIALKOW, Lawrence. Weighted shifts quasisimilar to quasinilpotent operators, A-210; On the range of the operator T(X) = AX - XB, Preliminary report, A-335; Spectral theory for a class of operators. Preliminary report, A-512; Some results on the operator T(X) = AX - XB, A-574.
FICKET, James W. A conjecture of Ulam on the invariance of measure in the Hilbert cube, A-578.
FIEDORKOWICZ, Zbigniew, A. Kan-Thurston type theorem for discrete monoids and a stability result, A-569.
FIELDSTEEL, Adam. An uncountable family of prime transformations not isomorphic to their inverses, A-209.
methods for a singular eigenvalue problem with eigenparameter in the boundary conditions, A-79.


GAFFNEY, Terence and RUS, Maria. Singularities of mappings and orthogonal projections of spaces. Preliminary report, A-120.


GAGOLA, Stephen M., Jr. See GARRISON, Sidney C.

GALLAGHER, Patrick X. Irregularity of distribution of zeros of the Riemann zeta-function, A-541.

GALLAGHER, Patrick X. and PROULX, Ronald J. Group characters and metric invariants, A-240.


GAFFNEY, Terence and RUS, Maria. Singularities of mappings and orthogonal projections of spaces. Preliminary report, A-120.

GILBERT, John E. Transplantation theorems and HP-theory. Preliminary report, A-244.


GIRARD, Robert. The diffusion-convection equation with pressure, A-466.

GIRARD, Robert B. Applications of the derived flag of Pfaffian systems. Preliminary report, A-113.


GITTEN, Dennis J. See DAVERMAN, Robert J.

GONZALES, R.B. The diffusion-convection equation with pressure, A-466.

GONZALES, R.B. Almost continuous images of Peano continua, A-564; Compositions of almost continuous and continuous functions, A-637.


GORENSTEIN, Z. and TALAGRAND, M. Splitting homotopy idempotents which have essential fixed points, A-319.


GOODBERG, L. See BALKEMA, A.A.

GOODMAN, Stuart and HAUNG, Chi-Ruey. Nonparametric maximum likelihood estimation by the method of sieves, A-528.

GOODHEARN, Ross. Splitting homotopy idempotents which have essential fixed points, A-319.


GOLDSMITH, Donald L. and ENTRINGER, Roger C. A sufficient condition for equality of edge-connectivity and minimum degree of a graph, A-26.

GOLSTEIN, J.A. See AIKEN, J.G.

GOLSTEIN, M. and SWAINMATH, S. Pseudo-uniform convexity in Hardy spaces over compact groups, A-470.


GOLUMB, Solomon W. Iterated binomial coefficients, A-642.


GOODMAN, Victor. See ALEXANDER, Kenneth.

GOODWIN, Peter M. Computations of unsteady transonic flow governed by the conservative full potential equation using an alternating direction implicit algorithm, A-487.


GRAD, C. MCA. Knots in the boundaries of contractible 4-manifolds, A-351.

GRAD, Carolyn S. Isometry groups of semisimple connected Lie groups with left-$\infty$-invariant Riemannian metrics. Preliminary report, A-254.


GRASS, John. See COHEN, Jonathan.

GRANGER, Donald J. and JACOBSON, Michael S. Some Ramsey type results on trees versus certain classes of graphs with largest clique of size $n$. Preliminary report, A-809.


GRAFF, Samuel M. and BERGER, Selman A. A statistical approach to the solvent extraction of metal complexes of varying metal-ligand ratios, A-221.

GRAHAM, Colin C. Quotients of $L^2$ and $WAP$, A-244;

Mappings that preserve Sidon sets in $R^p$, A-546.


GRAHAM, Ronald L. On a diophantine equation arising in graph theory, A-34; On sums of distinct terms taken from a fixed sequence, A-454.


GRANT, Douglass L. Arbitrary powers of the roots of unity are minimal Hausdorff topological groups, A-232.


GREEN, Leon W. The tangent space of an ideal boundary, Preliminary report, A-246.

GREEN, William L. See ANDREW, Alfred D.

GREENBERG, James M. Special solutions to $\lambda - \omega$ equations, A-579.

GREENE, R.E. and SHIOHAMA, K. Riemannian manifolds having a nowhere constant convex function, A-223.

GREENLEAF, Newcomb. What Cantor did and didn't prove-a constructive evaluation, A-23.


GREINER, Peter C. Spherical harmonics on the Heisenberg group, A-547.


GRIFFEEATH, David. See BRAMSON, Maury.

GRIFFITH, David. See GRAY, Lawrence.


GRIMMER, Ronald. See FOSTER, Kent.


GRISPOLAKIS, S.C. See AIKEN, J.G.

GROEMAN, F. Alberto. Tomographic reconstruction with limited angles of view, A-326.


GROEBNER, S. Pierce sheaves and torsion-theoretic monopresheaves, A-237.

GROEBNER, W. See GROEBNER, W.

GREENBERG, James M. Special solutions to $\lambda - \omega$ equations, A-579.

GREENE, R.E. and SHIOHAMA, K. Riemannian manifolds having a nowhere constant convex function, A-223.

GREENLEAF, Newcomb. What Cantor did and didn't prove-a constructive evaluation, A-23.


GRIMMER, Ronald. See FOSTER, Kent.


GRISPOLAKIS, S.C. See AIKEN, J.G.


GROEBNER, S. Pierce sheaves and torsion-theoretic monopresheaves, A-237.

GROEBNER, W. See GROEBNER, W.

GREENBERG, James M. Special solutions to $\lambda - \omega$ equations, A-579.

GREENE, R.E. and SHIOHAMA, K. Riemannian manifolds having a nowhere constant convex function, A-223.

GREENLEAF, Newcomb. What Cantor did and didn't prove-a constructive evaluation, A-23.


GRIMMER, Ronald. See FOSTER, Kent.


GRISPOLAKIS, S.C. See AIKEN, J.G.


GROEBNER, S. Pierce sheaves and torsion-theoretic monopresheaves, A-237.

GROEBNER, W. See GROEBNER, W.

GREENBERG, James M. Special solutions to $\lambda - \omega$ equations, A-579.

GREENE, R.E. and SHIOHAMA, K. Riemannian manifolds having a nowhere constant convex function, A-223.

GREENLEAF, Newcomb. What Cantor did and didn't prove-a constructive evaluation, A-23.


GRIMMER, Ronald. See FOSTER, Kent.


GRISPOLAKIS, S.C. See AIKEN, J.G.


GROEBNER, S. Pierce sheaves and torsion-theoretic monopresheaves, A-237.

GROEBNER, W. See GROEBNER, W.

GREENBERG, James M. Special solutions to $\lambda - \omega$ equations, A-579.

GREENE, R.E. and SHIOHAMA, K. Riemannian manifolds having a nowhere constant convex function, A-223.

GREENLEAF, Newcomb. What Cantor did and didn't prove-a constructive evaluation, A-23.


GRIMMER, Ronald. See FOSTER, Kent.


GUERRIERI, Bruno. See HUNTER, Christopher.


GUNDY, Richard. Recent developments in probability and classical analysis, A-316.

GUPTA, Chaitan P. Some recent results on Fredholm and Hammerstein equations and applications, A-94.

GUPTA, Hansraj and SINGH, K. On the largest r for which (m(k!))/(n!(k+r)!) is an integer. Preliminary report, A-502.


GUR, Stanley J. The Hasse norm principle in nonabelian extensions, A-43.

GUREL, Okan. Models with exploded points, A-299.


HAALAND, Perry, Characterization of certain partitioning methods with application to statistical monitoring systems, A-134.


HAGLER, James and SULLIVAN, Francis. Smoothness and weak* sequential compactness, A-103.


HAHN, A.J. Unipotent transformations in orthogonal groups, A-234.

HAHN, Marjorie G. and KLAAS, Michael J. The multidimensional central limit theorem for arrays normed by affine transformations and related asymptotic independence results, A-342.


HAJMO, Frank. Rings that are both commutative and associative on a given abelian group. Preliminary report, A-625.


HALL, Jonathan I. Local characterization and embedding problems for graphs, A-568.


HALMOs, Paul R. Closure and continuity, weak and strong, A-106.


HANHACK, Gary C. See DOTZEL, Ronald M.


HANLON, Phil. Counting unit interval graphs, A-567.


HARING, Frank. Recent results on generalized Ramsey theory for graphs, A-566.


HARBIN, Mickie Sue. See BEARD, Jacob T.B.,Jr.


HARER, John L. How to construct all fibered links, A-204.


HARRELL, Ronald. See Goldrick, Robert.


HARRIS, Gary A. A nonconstant rank implicit function theorem. Preliminary report, A-44.


HARRISS, Margaret Weems. On the reverse spelling of a point universal word, A-424.


HARTFIEL, D.J. and HOBBES, Arthur M. A k-connected graph can be partitioned into k connected subgraphs of prespecified sizes, A-197.


HARTWIG, R.E. Unit and unitary solutions to the matrix equation AX = B. Preliminary report, A-566.


HAY, L. See ATKIN, A.O.L.

HAYASHI, Elmer. See BAXLEY, John V.

HAYASHI, Elmer K. See CARMICHAEL, Richard D.


HEANEY, James P. See STRAFFIN, Philip D.,Jr.

HEARD, Melvin L. The oblique derivative problem for an open boundary, A-96.

HEATHE, L.F. and SUFFRIDGE, T.J. Holomorphic
JOHNSON, Frederick C. Practical aspects of fishery management modeling, A-354.


JOHNSON, Nancy. See OWEN, Guillermo.

JOHNSON, Raymond. See HEINIG, Hans.


JONES, Gary D. Oscillation properties of nth order linear differential equations, A-78.

JONES, John, Jr. Solutions of the Lyapunov matrix equation, A-49.

JONES, John, Jr. and POMYKALSKI, Thomas S. The matrix equation AX + CX = 0. Preliminary report, A-457.

JONES, Marsha Finkel. F-projectivity and flat epimorphisms, A-53.

JONES, R.L. See ASH, J.N.


JOSEPH, James E. Some remarks on θ-rigidity, A-123.

JOSEPH, F. See ESPELIE, M. Solveig.

JOSLIN, I.A. See JERRI, A.J.


JURKAT, W.B. and SAMPSON, G. On weak restricted estimates and endpoint problems for convolutions with oscillating kernels \( 1 \). Preliminary report, A-501; The complete solution to the \( ( P, j) \) mapping problem for a class of oscillating kernels \( A-380 \).

KABELL, Jerald A. See HARARY, Frank.

KAFLY, A.K. See FORCADA, S.J.

KAC, Victor G. Infinite dimensional Lie algebras and \( \Theta \)-functions, A-543.


KAFFNER, James H. Geodesic fields with singularities, A-311.


KAHANE, Charles S. See AHNER, John F.


KALLAHER, M.J. and OSTROM, T.G. Collineation groups acting irreducibly on lines of a translation plane, A-341.

KALLMAN, Robert A. A result on \( C^\ast \)-algebras and countable separability, A-637.


KAPLAN, Ardiol. A class of nilpotent Lie groups with analytically hypoelliptic sublaplacians, A-62; Composition of quadratic forms and a class of hypoelliptic POE, A-241.


KAPOR, S.F. and JENDRUS, David.

KARLOF, John. Optimal (M3) group codes for the Gaussian channel, A-151.

KARLSON, J. and SAFF, E.B. Singularities of analytic functions determined by Padé approximants, A-584.


KARTSATOS, Athanassios G. and TORD, Jorge Gonzales. Comparison theorems for equations with middle terms of order \( n-1 \), A-74.


KASUBE, Herbert E. Unique and almost unique factorization, A-454.


KATZ, Irving. See HALL, Frank J.


KAUFMAN, Robert M. See BRADLEY, John S.


KAUFMANN, Matt. See CUTLAND, Nigel.

KAZARINOFF, Nicholas D. What Hopf bifurcation analyses may suggest to experimental scientists, A-326.


KEEPLE, Samuel. See DUBOIS, Paul F.


KEIGHTLY, K.M. and ROPES, G. Optimal (M3) group codes for the Gaussian channel, A-151.

KEHAYOPPOULU, N. A characterization of \( \langle m, n \rangle \)-regular le-semigroups.
Preliminary report, A-419.


KELLER, Clayton W. Existence of infinitely many solutions of a nonlinear eigenvalue problem on \( R^n \), A-211.

KELLER, James M. See HUCKABA, James A.


KELLOGG, R. Bruce. See AZIZ, A.K.

KELLOGG, R.B. See GARNER, J.B.

KELLY, D. See GRÄTZER, G.

KEMPERMAN, J.H.B. On the norm of an unbiased estimator, A-134.


KENDALL, J. See ASTIN, A.


KENT, Michael J and SCHWARTZ, Charles F. Specialization to torsion of a rational point on an elliptic curve over \( Q(t) \), A-47.


KILGOUR, D. Marc. Equilibrium points of infinite stationary truels, A-144.


KILOV, Haim I. See BAITMAN, Mark M.


KIRKIN, J. AND ROUSH, Fred W. A statistical proof for the inconsistency of \( ZFC \) and \( V= \bigcap \mathbb{P} \). Preliminary report, A-447; A short set-theoretic proof of the inconsistency of \( ZFC \), A-618.


KRAMER, Earl S., MAGLIVERAS, Spyros S., and MESNER, Dale M. t-designs from the Targhel groups, A-204; Some resolutions of S(5,8,24), A-429. KRAMER, Earl S. and MESNER, Dale M. A special 52 x 52 Room-type design, A-505.


KRANAKIS, Evangelos. $\sum_{n}$-partition relations. Preliminary report, A-442.


KRAUSS, Peter H. See CLARK, David M.


LAKSER, H. See GRATZER, G.


LANDAVER, Christopher A. Every graph has an acceptable orientation, A-420.


LANGENHOP, C. E. See HOOKER, John W.


LAPENTA, J. F. See PRICHETT, Gordon D.


LARMA, David. See KLEE, Victor.


LAKSER, H. See GRATZER, G.


LAGNESE, John. Boundary patch control of the wave equation in some non-star complemented regions, A-566.


LAM, D. T. See CHOI, M. D.


LAUNCH, M., SAFF, E. B., and VARGA, R. S. Inequalities for polynomials with a prescribed zero, A-9u.

LACHLAN, Alistair H. and MESNER, Dale M. A special 52 x 52 Room-type design, A-505.

LABORDE, Jean-Marie. A local characterization of the graph of hypercubes, A-266.

LABELOE, Jean-Marie. A local characterization of the graph of hypercubes, A-266.


LAGNESE, John. Boundary patch control of the wave equation in some non-star complemented regions, A-566.
LAUGWITZ, Detlef. Sums of squares modulo m, A-503.
LAWSON, Jimmie D. See FORHAN, Karl H.
LAY, Terry L. Countable 1-dimensional star-like equivalent decompositions, A-529.
LAZER, A.C. See ALMAD, Shair.
LEAVIT, William G. Minimally embeddable rings, A-566.
LEE, Sung J. Operators with countably many generalized boundary conditions, A-72; Finitely many conditions for linear manifolds, A-630.
LEE, Yong M. See KIM, Jin Dal.
LEELA, S. See LAKSHMIKANTHAN, V.
LEGG, G.A. See ALLEN, G.D.
LEGG, David and TOWNSEND, Douglas. Essential numerical range in B(k), A-614.
LELEK, A. Span of continua, A-633.
LEMIKRE, F.W. See BERGMAN, George M.
LEPSON, Benjamin, OSGOOD, Charles F. and YANG, Chung-Chun. The distribution modulo 1 of unbounded real sequences, A-304.
LERNER, Hao T. See JUNGHEINNEN, H.D.
LEUNG, Dominic S.P. On the local existence and deformations of submanifolds with constant mean curvature in a Riemannian manifold, A-118; The Cauchy problem for surfaces with parallel normalized mean curvature vector in a four dimensional Riemannian manifold, A-475.
LEV, Yo. Special means of derivatives of some univalent functions, A-68.
LEVI, Mark. Qualitative analysis of the periodi­

LEWIS, Roger T. and WRIGHT, Lynne C. A comparison theorem for even-order, vector-matrix differential equations, A-76.
LIN, T.C. On asymptotic centers and fixed point theorems in conjugate Banach space, A-338.
LIMAYE, B.V. See KULKARNI, S.H.
LIN, Shen. See HWANG, Frank K.
LIN, T.Y. On injective stable homotopy modules and a solution to the generating hypothesis, A-310.
LINDNER, Charles C. A technique for embedding cyclic orthogonal arrays, A-29.
LIPSMAN, Ronald L. The orbit method on Lie groups with co-compact radical, A-562.
LILJERED, Richard. See CAMERON, Gordon.
LIU, Chung-Der. On the convergence of the extended Hermit-Féjer interpolation, A-582.
LO, Chi Yeung. See GIVENS, Clark.
LOGLAST, Jim and ROITMAN, Judith. Semi-rigid atomic Boolean algebras with few endomorphisms, A-442.
LOCKER, John and ROITMAN, Judith. Semi-rigid atomic Boolean algebras with few endomorphisms, A-442.
LONG, Calvin T. A limited arithmetic on simple continued fractions, A-37.
LONGYEAR, Judith Q. Nested designs, A-448.
LOPEZ-ESCOBAR, E.G.K. Equivalence of intuitionis-
LOSEY, Nora. See LOSEY, Gerald.
LOWEN, R. Compact Hausdorff fuzzy topological spaces are topological, A-445.
LUBIN, Jonathan. Copolygon, transition function, and local class-field theory, A-454.
LUDINGTON, Anne L. A bound on Kaprekar constants, A-34.
... See PRICHETT, Gordon D.
LUEDEMAN, John K. Torsion theories and semigroups of quotients, A-286.
LUH, Jiang. See CHUNG, L.O.
LUNING, C.D. See PERRY, W.L.
LUTZER, D.J. See BENNETT, H.R.

MacGREGOR, Thomas H. See ABU-MUANNA, Yusuf.
MADAN, Manohar L. See VALENTE, Robert C.
MAGILL, Kenneth D., Jr. Automorphism groups of some semigroups are Schützenberger groups of others. Preliminary report, A-588.
MAGLIVERAS, Spyros See PRICHETT, Gordon D.
MAGNUS, W. See PERRY, W.L.
MASHIK, Bernard. See KRA, Irwin.
MAITRE, David P. Characterization of continuous operators commuting with power of integration, A-464.
MATJEVIC, Jacob R. Matrix factorization and Towner rings, A-531.
MAUSER, Stephen B. A minimum cycle problem in DNA research, A-448.
MAYES, Vivienne M. Classes of means which are common to Gronwall means. Preliminary report, A-87.
MAALEY, Louis F. and WOODRUF, Elythe P. Certain point-like decompositions of $E^3$ with l-dimensional images of non-degenerate elements, A-323.
MCANN, Roger C. Asymptotically stable dynamical systems are linear, A-76.
... See JANOS, Ludevik.
MCCARTHY, Michael J. A class of scattering WALS. Preliminary report, A-424.
MCCARTNEY, Philip W. and O'BRIEN, Richard C. A separable Danach space having the Radon-Nikodým
property which is not isomorphic to a subspace of a separable dual space, A-11.


McCoy, R.A. See Lutzer, D.J.


McDonald, Bernard R. The orthogonal group and Witt ring over a full ring, A-237.

McDonald, David R. The Bernoulli11 part of a sum of dependent random variables, A-405.

McDonald, Gerard and SUNDEBERG, Carl. Toeplitz operators on the disc, A-464.

McDowell, Kenneth. See BULMAN-FLEMMING, Sydney.

McEnnis, Brian W. Purely contractive analytic functions and characteristic functions of noncontractive operators with bounded characteristic function, A-109.


McEneaney, Carruth and Woodward, Gordon S. Continuous manifolds in $R^n$ that are sets of interpolation for the Fourier algebra, A-629.


McKay, John. See FORD, David.


McKelvey, R.W. See Herod, James V.

McKenzie, Ralph. See FRESE, Ralph.


McLelland, Harry. See HARPER, John.

McLennan, Michael. Ends of fundamental groups in shape and proper homotopy, A-317.

McMullin, Michael. Ends of fundamental groups in shape and proper homotopy, A-317.

McLoughlin, Alleen M. The covering radius of the general linear group GL(m,2), A-283.

McLoughlin, Alleen M. The covering radius of the general linear group GL(m,2), A-283.


McNab, Brian W. Purely contractive analytic functions and characteristic functions of noncontractive operators with bounded characteristic function, A-109.


Melnik, Harold Willis and Hildebrand, S.K. A topological approach to minimizing $\mathcal{L}f(x,y,y')dx$ in subspaces of the plane, A-4U.


Mimura, Masayasu. Ends of fundamental groups in shape and proper homotopy, A-317.

Miller, Bernard R. The orthogonal group and Witt ring over a full ring, A-237.


Miller, Douglas E. Borel selectors for separated quotients, A-124; Remarks on the quantifier "there exist uncontably many", A-617.

Miller, Douglas E. See Baldwin, J.T.


Miller, J.G. Pseudospherically symmetric Tachyon fluids, A-1U.

Miller, Kenneth S. See Leskiw, Donald M.


Millet, Annie and Sucheston, Louis. Essential convergence of $L^p$-bounded martingales does not imply the Vitali condition $V$, A-341.


Mills, Charles F. When Colorado is homeomorphic to Utah, A-283.


Mines, R. See Mader, A.


Miyakawa, Florinda K. See Da Silva, Cléóvits P.


Mock, Michael S. Existence and uniqueness results for orbits connecting critical points of some autonomous systems, A-549.

Mock, Michael S. See Nussbaum, Roger D.

Mogamed, Saad and SINGH, Surjeet. Weak $q$-rings with zero singular ideal, A-5.


MUNROE, Ted. See TROTTER, William T., Jr.

MONTGOMERY, M. Susan. See MARTINDEL, Wallace S.

MONTGOMERY, Susan and SMALL, Lance W. Affine fixed rings in PI rings, A-541.

MOORE, John I., Jr. See SUMNER, David P.

MORALES, Pedro. See BELLEY, Jean-Marc.

MORAN, Gadi. Scattered compact orders are the two-to-one images of compact ordinals, A-261; A T2-image of a compact ordinal nonobtainable from ordinals by iterating finite-products and taking subspaces, A-284.


MORLEY, Larry J. and PERKEL, Manley. The nilpotency class of extensions of certain p-groups, A-56.

MORLEY, T.D. See ANDERSON, W.N., Jr.

MORRIS, Peter. A nonuniquely minimal Fourier projection, A-104.


MORRISON, Tim. See HEERDA, Nickolas.


MOTT, Joe L. Prime t-ideals, A-626.

MOULIS, A. A regular space which is not completely regular, A-444.


MYCIELSKI, Jan. See EHRENFEUCHT, A.

MYCIELSKI, Jan. See GALVIN, F.


MYERS, Diane-Claire. See ROULIER, John A.

MYERS, Robert. Homology 3-spheres which admit no PL involutions, A-347.


MYSIDOR, A. A regular space which is not completely regular, A-444.

MYUNG, Iyo Chul. See OKUBO, Susumu.


NAGATA, Jun-I. A characterization of separable metric spaces in terms of C*(X), A-230; A class of spaces for which covering dimension and large inductive dimension coincide, A-394; A note on the previous abstract 'A characterization of separable metric spaces in terms of C*(X)', A-443.


NAGYLAI, Thomas. See ETHIER, S.N.


NATION, J.B. See FRESEE, Ralph.


NEVA!, Paul. Mean convergence of Lagrange interpolation taken at the zeros of Hermite polynomials.


PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKS, James M. On an associated spectrum, A-480.


. See ALSPACH, Brian.


PASCHKE, William. See BUNCH, John W.


PASSOY, Gregory B. Ergodic convergence to a zero of the sum of monotone operators. Preliminary report, A-556.


. See BYLEEN, James M.


PIGOGGI, Don. Locally finite, equationally complete varieties I, A-374.

. See KÖHLER, Peter.

. See McEOVY, Brian.


PIOTROWSKI, Zbigniew. On semimorphisms, A-228; Continuity points in |x|x Y, A-529


PIRANIA, George and SHAPIRO, Harold S. Jordan points of holomorphic functions, A-581.


PLOTNICK, Steven P. Whitehead groups of some non-sufficiently large 3-manifolds. Preliminary report, A-481.

PLUMMER, Michael D. n-extendable graphs, A-569.


POIROT, Bruno. Theorums with or without the independence property, A-526.

POLMENI, Albert D. See CHARTRAND, Gary.

POLLOCK, Richard. See GOODMAN, Jacob E.


POMERANCE, Carl. Popular mathematics on [FC]-groups, A-472.

PETERS, Allan. Focal Green's functions for fourth order differential equations, A-76.

PETERS, Brian and TAFT, Earl J. How to diagonalize a linearly recursive sequence, A-233.

PHELPS, Judy Kennedy. Conditions under which 2-homogeneity and representability are the same, A-634.


PHILLIPS, William J. See GHATAGE, Pratibha G.

PIATETSKI-SHAPIRO, Z. Zeta functions and representations, A-489.


PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.

PARKER, Phillip E. Some new directions in relativity, A-139; Diffeomorphism of manifolds, A-229.
complete Heyting algebras by topologies of complete Boolean algebras, A-4.

PRADHAKAR, T.K. and TOMAR, R.C. Biorthogonal polynomials suggested by the Legendre polynomials, A-205.


RAM, Jai. See BEDI, Surinder Singh.


RAMANUJAN, M.S. See ALPSEYMEN, M.


RANKIN, Samuel M. III. A remark on cosine families, A-76.

RAO, G.C. See SWAMY, U.M.

RAO, R.Sita Rama Chandra. See KANEMITSU, S.

RAO, V.V. Identities involving Fourier coefficients of automorphic wave forms, A-243.

RAFAEL, Louise A. Stieltjes summability and application, A-85.

RAPPORT, Anatol. Separating and assessing motivation pressures in 2 x 2 experimental games, A-146.

RASSIAS, George M. Some results in the Morse theory on a differential manifold, A-230; A class of manifolds for which the 3-dimensional Poincaré conjecture is true, A-530; On the homotopy type of CW-complexes, A-620.

RASSIAS, G.M. See KONTRAROU, A.E.


RASSIAS, John M. A maximum principle in R^5, A-10; Mixed-type partial differential equations in R^n (n ≥ 2), A-433; A maximum principle in R^n (n ≥ 2), A-511; Applications of mixed-type equations in fluid dynamics and new theorems, A-610.

RASSIAS, Themistocles M. An answer to a problem posed by S. Mazur, A-10; Intervals containing infinitely many sets of conjugate algebraic integers, A-193; On a generalization of a geometric theorem of Poincaré, A-281; The Morse-Smale index for a minimal immersion in R^n, (N ≥ 3) and its application to the classification problem of unstable minimal immersions, A-531; On the Riemann zeta-function, A-610.

RATAFIA, J.K. See KONTRAROU, A.E.

RATCLiffe, John G. See GUTERREZ, Mauricio A.

RATHIE, Pushpa N. See SHENG, Lilian T.

RAUMSLEY, John G. See WONG, A.Y.

RAY, William O. The fixed point property and unbounded sets in Hilbert space, A-334.


RAY-CHAUDHURI, Dijen K. See KO, Hail-Ping.

RAYMOND, Frank. See NEUMANN, Walter D.


REAL, Teresa. See HEATHERLY, Henry.

REDDIEN, G.W. See MATHIS, F.H.

REED, George M. Q-sets and Shelah’s principle, A-124.


REID, J.D. See NJEDZWECKI, G.P.

REILLY, Ivan L. See RAGHAVAN, T.G.

REILLY, Robert C. Geometric applications of the solvability of certain boundary-value problems, A-117.
REMMEL, J.B. and GARSIA, A.M. Q-analogues of rock polynomials, A-413.
RESNIKOFF, H.L. Theta functions on symmetric Siegel domains, A-557.
RICHARDS, Ian. See YENKA, Thomas.
. See HUNTER, Roger H.
RICHTHOUX, A. See CHUNG, L.O.
RICKERT, N.W. See ATKIN, A.O.L.
RINGEISEN, Richard D. See BEINEKE, Lowell W.
ROBINS, D.A. See KITCHEN, J.W.
ROBINS, Neville. On Fibonacci numbers which are powers, A-39.
ROBINSON, Derek J.S. Simple groups as automorphism groups, A-458.
ROBINSON, Robert W. See PALMER, Edgar M.
ROBINSON, Stewart R. A theorem on separation is equivalent to the axiom of choice. Preliminary report, A-122.
ROCHEBERG, Richard. See COIFMAN, Ronald R.
RODENICH, Eugene. An inequality for univalent functions with real coefficients, A-68.
ROERIG, Stephen F. Fixed points in $\mathbb{R}_+$, A-306.
ROGERS, Laurence. Basic subgroups from a constructive viewpoint, A-55.
. See LOATS, Jim.
ROSE, Henry. Varieties generated by splitting lattices $Q_1$, $Q_2$, and $N_4$, A-366.
ROSEN, Kenneth H. The enumeration of lattice points in certain higher-dimensional tetrahedra and a conjecture of Rademacher, A-35.
ROSEN, Lon. See BATTLE, Guy A.
ROSEN, Robert. On anticipatory systems, A-308.
ROSENBERG, A. See KLEINSTEIN, J.
ROSENBERG, Gary. See KYNER, Walter T.
ROSENBERG, Ivo. Functionally complete algebras in congruence distributive variety, A-373; Structural rigidity of bar and joint and cabled frameworks, A-558.
ROSENBERG, Jonathan. The generalized "Langlands conjecture" for unimodular Lie groups, A-563.
. See GOOTMAN, Elliot.
ROSENTHAL, John W. See ASH, Chris.
ROSSINGER, Elemer E. Necessary and sufficient condition for global weak solvability of nonlinear PDEs, A-273; Resolution of singularities and stability of weak solutions for polynomial nonlinear PDEs, A-377; Stability and convergence for nonlinear difference schemes are equivalent, A-439.
ROSSI, Hugo. Certain $Sp(n,R)$-homogeneous domains, A-335.
ROSSMANN, W. Kirillov's character formula for reductive Lie groups, A-561.
ROTH, Ben. See BOLKER, Ethan D.
ROTH, Ben. and WHITELEY, Walter J. Generic properties of tensegrity frameworks, A-545.
ROTHSCHILD, B.L., DEUBER, Walter, and VOIGT, Bernd. Induced Ramsey theorems, A-461.
ROUSSAK, D. See HOFF, D.A.
ROUSSAK, D.A. Simple groups as automorphism groups, A-459.
ROUSSAK, D.A. Involutions fixing the disjoint union of a point and a real projective space. Preliminary report, A-321.
RUAS, Maria. See GAFFNEY, Terence.
RUBEL, Lee A. See BECKER, Joseph
RUBEL, Lee A. See LAPPAN, Peter.


RUBINSTEIN, Hyam. See AITCHISON, Ian.

RUBINSTEIN, J.H. See BIRMAN, Joan S.

RUBIO DE FRANCIA, José L. Vector valued inequalities for Fourier and Walsh series, A-216.

RUCKLE, William H. On the constructability of solutions to two person games, A-142.


RUSIN, David J. See GALLIAN, Joseph A.

RUSSELL, Dennis G. and JAKOWSKY, Amnon. Beta-duals of matrix fields, A-86.


SALIT, Nobui. See TAKAMIZAWA, Kazuhiko.

SALANE, Or. See TOWARN, R.P.

SALLE, Herberto. See PASSE, William L.


SAMPSON, Gary. See JURKA, W.B.


SANDERSON, Donald. See KIM, Paik K.

SANDS, B. See POGUNTKE, W.


SARAFIAN, Diran. See DERR, Leroy J.


SATAKE, Ichiro. \( \mathcal{F} \)-functions and \( \mathcal{F} \)-functions associated with self-dual cones, A-556.

SATHE, Avinash. See EAKIN, Paul M.

SATHER, D. See KNIGHTLY, George H.


SCHAEFER, A. See DIREK, N. ANDERSON, R.

SCHAEFER, N. and STONE, M.G. Indigenous relations in categories of sets, A-197.

SCHILLING, Kenneth. See VAUGH, Robert.


SCHEER, Herbert E. Production sets with indivisibilities: A new approach to integer programming, A-489.


SCHREIDER, J.H. See BIRMAN, Joan S.


SCHWARTZ, John. See KIM, Paik K.

SCHWARTZ, Stanley. Results on stepping stone models, A-465.

SCHEF, Herbert E. Production sets with indivisibilities: A new approach to integer programming, A-489.

SCHEPP, R.H. See FAUDREE, R.J.


total order, A-59.

SKOG, David L. See JOHNSON, Gerald W.
SLATER, Morton L. See EVANS, Kenneth W.
SLATER, Morton L., and WANG, Amy Huang. On the equation \( d(x) = \sum K(E)p(E)dE \), A-552.


SMALL, Lance W. See MONTGOMERY, Susan
SMITH, B. See ERDOSS, P.
SMITH, David A. Differential models for perception of optical illusions, A-147.


SMITH, H. See SMITH, Roger.

SMITH, James. See WITTEN, Matthew.


SMITH, Alan H. See MEKLER, Alan.


SMITH, Martha K. Growth of \( K(x,y) \) \( \cup \{x\} \). Preliminary report, A-536.

SMITH, Michel. Hereditarily indecomposable continua which are the inverse limits of \( N \)-cubes are antit Moore spaces, A-252.

SMITH, Roy C. The degree of the Prym map in dimension five, A-48.

SMOLLER, Joel. Some questions in the theory of reaction-diffusion systems, A-82.


SMYTHE, R.T. Percolation models in two and three dimensions, A-495.

SMITH, Robert L. The zero-divisor conjecture for rings of nilpotent groups, A-61.


STARK, H.M. Modular forms and theta functions, A-539.


STEGENDA, David A. An \( h^1 \) multiplier theorem. Preliminary report, A-469.


STEIN, Elias M. Weak type estimates for maximal operators on certain \( HP \) classes, A-546; Area integral and \( HP \) for the polydisc, A-656.

STEIN, Ivie, Jr. The gradient in a normed linear space, A-644.

STEIN, Junior and CHAN, Hon-Ming. Convergence criterion for a class of conjugate gradient algorithms in Hilbert space, A-246.

STEIN, P.R. and WATERMAN, M.S. On some new sequences generalizing the Catalan and Motzkin numbers, A-233.

STEGENDA, David A. An \( h^1 \) multiplier theorem. Preliminary report, A-469.


STERN, Lynnell E. On optimality of control systems in infinite time intervals, A-308.

STERN, Ronald. See FINTUSHEL, Ronald.


STILLER, Peter F. Elliptic curves over function fields and Picard numbers, A-292.

STINSON, D.R. See DINITZ, J.H.

STOKER, J.J. Uniqueness theorems for convex and nonconvex polyhedra, A-622.


WICKLES, William E. See VINSINSKIS, C.

WIELEMBERG, Norbert J. Link groups in the Picard group, A-580.


WILLIAMS, Kenneth S. Remark on the divisibility of the class number of \( \mathbb{Q}(\sqrt{-p}) \) modulo 16, A-367; The divisibility of the class number of \( \mathbb{Q}(\sqrt{-p_1 \cdots p_n}) \) by \( 2^{n+2} \), A-3; On the divisibility of the class number of \( \mathbb{Q}(\sqrt{p}) = p \) by 16, A-196; The class number of \( \mathbb{Q}(\sqrt{p}) \) modulo 4 for \( p = 5 \) (mod 8) a prime, A-423; Congruences modulo 8 for the class numbers of \( \mathbb{Q}(p) \), p = 3 (mod 4) a prime, A-504.


WILLIAMSON, Simon. See SHIELDS, Allen L.

WINFREE, Arthur T. A 2-dimensional continuum of circadian oscillators, A-149.


WITTEN, Matthew and SMITH, James. On the construction of a framework for testing aging theories in cell cultures, A-278.


WOLFE, Stephen James. On a continuous analogue of the stochastic difference equations \( x_n = p x_{n-1} + 1 \), A-312.


WOLK, Helmut. See HERF, Heinrich.


WONG, Roman W. Finitely generated ideals in free group algebras, A-50.

WOODRUFF, Edythe P. See MCAULEY, Louis F.

WOODWARD, Gordon S. See MCGHEE, O. Carruth.

WORMALL, Nicholas C. Counting unrooted planar maps, A-567.


WORRELL, J.M., Jr. See WICKE, H.H.


X.


ZABE, Henry M. Jr. See ISAACSON, David.


ZAIDEMAN, M.G. See ABRAMOVICH, Ju. A.


ZAM, William R. See BECKER, Joseph A.


ZASSENHAUS, Hans J. Computing the group of an unrooted planar map, A-504.

ZELDIN, David. Parameter solutions for two equal sums of 3n + 2 squares, A-5; Parameter solutions for a sum of n + 2 squares equal to a sum of 2n + 1 squares, A-202; Two new identities for integer sequences, A-270; An extension to real numbers of an extension to real numbers of two new identities for integer sequences, A-270.

ZELDIN, David. Parameter solutions for two equal sums of 3n + 2 squares, A-5; Parameter solutions for a sum of n + 2 squares equal to a sum of 2n + 1 squares, A-202; Two new identities for integer sequences, A-270; An extension to real numbers of an extension to real numbers of two new identities for integer sequences, A-270.
integer sequences defined by linear difference equations of order two, A-373; Parametric solutions for two equal sums of n + 2 squares, A-428; T(n), the number of incongruent triangles with integer sides and perimeter n, is a solution of a homogeneous, linear difference equation of minimal order nine (9), A-527; Parametric solutions for a sum of n + 2b + 1 squares equal to a sum of 2n + b + 2 squares, A-609.

ZELAZKO, W. Open problems concerning axiomatically defined joint spectra, A-576.

ZHOU, Jun-Bi. See LIN, Bang-Jin.

ZIEGLER, Lynn R. Norm and zero asymptotics for extremal polynomials, A-89.

This monograph provides a thorough exposition of the discrete sheaf construction as a tool for obtaining subdirect representations as structures of global sections of sheaves. These subdirect products, called "global," are identified internally as those having a simple closure property. The central result shows, in the context of universal algebra, how global subdirect representations can be uniformly constructed from any subdirect representations satisfying a certain finite patching property. This point of view presents two distinct advantages. First it strips the conventional construction of its most cumbersome and least relevant aspects, thereby revealing much new information about global subdirect products through a conceptually and technically simplified framework. Secondly it pinpoints just what information is needed from special algebra to be able to complete the construction. In the final sections it is shown how many of the most prominent classical sheaf representation theorems become smooth corollaries of the general theory which require very little (if any!) input from the special algebra involved. "Global Subdirect Products" is highly recommended for the novice looking for an introduction to sheaf representation as well as for the expert looking for a thorough and systematic study of those aspects of the discrete sheaf construction which can be handled in a purely universal algebra setting.

Number 210
109 + iii pages
List price $6.80; Institutional member price $5.10;
Individual member price $3.40
ISBN 0-8218-2210-1; LC 78-23373
Publication date: January 2, 1979
To order, please specify MEMO/210

A THEORY OF DIFFERENTIATION IN LOCALLY CONVEX SPACES
by Sadayuki Yamamura

When u is a continuous linear map of a locally convex space E into another locally convex space F, then for any continuous seminorm q on F there exists a continuous seminorm p_E on E such that q|u(x)| ≤ p_E(x) for every x ∈ E. In other words, every continuous linear map of E into F determines a correspondence between the defining families of seminorms of E and F. In this book, the author adopts this correspondence as the starting point for building a theory of linear maps and then a theory of differential calculus for maps between locally convex spaces.

A correspondence between families of seminorms gives a correspondence between families of (semi)normed spaces, and a calculus in locally convex spaces is reduced by this correspondence to a calculus on (semi)normed spaces. In this way, one does not need detailed knowledge of traditional theories on locally convex spaces to carry out calculations and all the theorems in the calculus on normed spaces can have their corresponding forms in this theory.

The book consists of six chapters (Linear maps, Differentiation, Inverse mapping theorem, Differential equations, Fredholm maps and analytic maps) and one appendix (Manifolds).

Number 212
82 + v pages
List price $6.40; Institutional member price $4.80;
Individual member price $3.20
ISBN 0-8218-2212-8; LC 78-22099
Publication date: January 2, 1979
To order, please specify MEMO/212

Prepayment is required for all American Mathematical Society publications.

Send for the book(s) above to: AMS, P.O. Box 1571, Annex Station, Providence, RI 02901.
NONLINEAR OSCILLATIONS IN BIOLOGY
Edited by F. C. Hoppensteadt
Lectures in Applied Mathematics, Volume 17

This book is an unusual and useful collection of applied and theoretical articles geared toward introducing the reader to a wide variety of methods in nonlinear oscillations. It will be of interest to applied mathematicians, bioengineers, and biophysicists who have a background of undergraduate mathematics (calculus, differential equations), and some graduate mathematics (diffusion processes, fluid mechanics). It contains summaries of some recent applications of nonlinear oscillations methods in life sciences. The papers are directed at introducing mathematically adept scientists to recent methods and results.

Contents

L. N. Howard, Nonlinear oscillations
C. Steele, Studies of the ear
A. S. Winfree, 24 hard problems about the mathematics of 24 hour rhythms
D. Ludwig, Stochastic modelling and nonlinear oscillations
F. C. Hoppensteadt, Computer studies of nonlinear oscillators
O. E. Rössler, Chaotic oscillations: an example of hyperchaos
J. K. Hale, Nonlinear oscillations in equations with delays
J. Guckenheimer, A brief introduction to dynamical systems

viii + 253 pages
List price $29.20, institutional member $21.90, individual member $14.60
ISBN 0-8218-1117-7; LC 79-26469, Publication date: November 1979
ORDERS MUST BE PREPAID. To order, please specify LAM/17

American Mathematical Society
P. O. Box 1571, Annex Station, Providence, Rhode Island 02901
INDEX

Volume 26 (1979)

The pages of the eight issues of the Notices for 1979 are as follows:

January: 1–82, A-1–A-190
April: 145–204, A-265–A-364
October: 335–432, A-499–A-604
November: 433–508, A-605–A-656
December: 509–598, A-657–A-694

ABSTRACTS PRESENTED TO THE SOCIETY
Errata, Volume 25, A-406
Index of Abstracts, Volume 26, A-657
Short Course Synopses, 367

ACKNOWLEDGEMENT OF CONTRIBUTIONS, 423

ADVERTISING POLICY, Recruitment, A-154, A-256

AMS REPORTS & COMMUNICATIONS, 79, 138, 199, 233, 324, 426, 492
Business Meetings of the Society
January, Biloxi, 141
August, Duluth, 427
Bylaws of the AMS, 493
Candidates Nominated for the 1979 Elections, 492
Committee Appointments, 79, 138, 199, 244, 426, 492
Committee Reports
Yeshiva University, 200
Modes of Support of Research, 244
Corporate Members and Institutional Associates, 423
Council Meetings of the Society
January, Biloxi, 141
April, New York, 326
August, Duluth, 427
Funds, 496
Officers and Committee Members of the Society, 328
Officers and Lecturers of the Society, 500
Officers of the Society 1978 and 1979, 201
Reports of Meetings
The October Meeting in Claremont, 138
The October Meeting in Syracuse, 139
The November Meeting in Charleston, 140
The November Meeting in Chicago, 140
The Annual Meeting in Biloxi, 141, 244
The March Meeting in Honolulu, 246
The April Meeting in New York, 326
The April Meeting in Iowa City, 327
The June Meeting in Vancouver, 426
The Summer Meeting in Duluth, 427
Report of the Treasurer, 324

APPLICATION DEADLINES FOR ASSISTANTSHIPS AND FELLOWSHIPS, 422, 491

ARTICLES, By Author
B. R. Agins, 299
D. J. Albers, 242
W. L. Duren, Jr., 182
W. H. Fleming, 106, 113, 198
E. E. Floyd, 393
M. Gerstenhaber, 200
M. W. Gray, 200
B. Lawson, 294
G. Lee, 301
S. Libeskind, 242
D. O. Loftsgaarden, 242
R. McKelvey, 242
L. J. Paige, 393
W. G. Rosen, 304
D. C. Rung, 391
S. Sternberg, 200
D. Sullivan, 295
P. J. Welcher, 511
G. S. Young, 395

ARTICLES, By Subject
Committee Reports
Committee on Employment and Educational Policy, 510
Modes of Support of Research, Report of the Committee on, 244
Nonacademic Employers of Ph.D. Mathematicians, 200
Employment Concerns Subcommittee of CEEP, 198
Yeshiva University, Report on, 200

Elections and Nominations
Candidates Nominated for 1979 Elections, 492
Council Action at Biloxi, 119
Election Information, 178, 227, 291, 375
The Nominating Committee for 1980, 180
Nominating Committee, President's Candidates for 1980–1981, 227
The Nominating Committee and the Preferential Ballot, 291
Nomination Petition for 1979 Election, 179, 181
Nominations for Vice-President or Member-at-Large, 178
Council Nominations, 227
Suggestions for Members of the Council and Board of Trustees, 292

Employment
Annual AMS Survey, Twenty-Second, Second Report, 106
Employment, Faculty Mobility, Enrollment, Fall 1978, 106
Annual AMS Survey, Twenty-Third, First Report, 227, 382, 470
Faculty Salaries, Tenure, Women, 382
Doctorates Confirmed, 1978–1979, 470
Report on the 1979 Survey of New Doctorates, 388
Salary Survey for New Recipients of Doctorates, 387
A Case History, Experiences Getting a Job, Spring 1979, 511
Committee on Employment and Educational Policy, 510
Data Subcommittee Survey, 55
Panel Discussion in Biloxi, 393
Doctorates Confirmed in 1978–1979, 470
Experiences Getting a Job, Spring 1979, A Case History, 511
Graduate Education in Mathematics, 393
Graduate Education: Trends and Constraints, 393
Nonacademic Employers of Ph.D. Mathematicians, 198
Postdoctoral and Other Nontenure Track Appointments in the Mathematical Sciences, 55
Two-year College Survey, 113
Two-year College Teachers, 242
An Unorthodox View of Employment Trends, 395

Miscellaneous
Böcher and Steele Prizes Awarded, 97
Bochner, Salomon, 99
Bylaws of the AMS, 493
Calderón, Alberto, 97
Experiences of a Congressional Science Fellow, 301
Hartshorne, Robin, 379
Kohn, Joseph J., 380
Lewy, Hans, 100

A-692
ERRATA TO ABSTRACTS

INVITED SPEAKERS AT AMS MEETINGS, 48, 95, 177, 226, 289, 373, 460
Michael Artin, Biloxi, 2
Charles A. Berger, Washington, D. C., 336
John L. Bryant, Birmingham, 434
Charles G. Conley, Iowa City, 156
Robert Connelly, Washington, D. C., 336
Richard M. Dudley, New York, 146
Henry A. Dye, Honolulu, 84
Eugene B. Dynkin, New York, 146
Jacob Feldman, Biloxi, 2
Hermann Flashka, Duluth, 256
John E. Fornaess, Biloxi, 2
Theodore T. Frankel, Vancouver, 206
John B. Garnett, Riverside, 441
Philipp A. Griffiths (Colloquium Lecturer), Biloxi, 2
Richard F. Gundy, New York, 146
Wolfgang R. G. Haken, Iowa City, 156
William A. Harris, Jr., Honolulu, 84
Allen F. Hatcher, Duluth, 256
Heisuke Hironaka, New York, 146
Arnold Kas, Riverside, 441
Anatole Katok, Birmingham, 434
George R. Kempf, New York, 146
Heinz-Otto Kreiss, Biloxi, 2
Martin D. Kruskal (Gibbs Lecturer), Biloxi, 2
Kyung Whan Kwn, Kent, 346
Oscar E. Lanford III, Vancouver, 206
James I. Lepowsky, Duluth, 256
Daniel R. Lewis, Kent, 346
Albert Marden, Kent, 346
George D. Mostow (Colloquium Lecturer), Duluth, 256
Jack Ohm, Birmingham, 434
Donald S. Passman, Washington, D. C., 336
Charles S. Peskin, Biloxi, 2
Paul H. Rabinowitz, Kent, 346
Judith D. Sally, Iowa City, 156
Herbert E. Scarf, Duluth, 256
Bhama Srinivasan, Biloxi, 2
Julius L. Shaneson, Biloxi, 2
Abraham H. Taub, Biloxi, 2
B. A. Taylor, Iowa City, 156
Jacques L. Tits, Duluth, 256
Eugene Trubowitz, Duluth, 256
Floyd L. Williams, Washington, D. C., 336
W. Stephen Wilson, Duluth, 256

LETTERS TO THE EDITOR, 61, 115, 184, 229, 305, 398, 469
R. D. Anderson, 61
R. C. Atkinson, 117
W. E. Barnes, 469
A. Beck, 309, 400
M. S. Berger, 469
G. M. Bergman, 65
D. G. Bourgin, 184
L. A. Coburn, et al., 63
R. L. Cooke, 308
H. F. Cullen, 64
K. L. Fields, 63
R. Finn, et al., 398
L. Flatto, et al., 63
L. Gillman, 65
M. Gray, et al., 398
J. Green, 229
Y. Gurevich, 231
R. Hermann, 229
C. Isnard, 231
N. Jacobson, 305
J. L. Kelley, et al., 398
H. Kilov, 398
A. Koranyi, et al., 63
V. Ja. Kreinovich, 308
S. Lang, 117
A. Lebow, et al., 63
J. L. Lebowitz, 230
L. Lorch, et al., 398
S. Mac Lane, 62, 64
A. A. Mullin, 309
J. Neyman, et al., 398
H. Pollard, 469
J. Roitman, 64
A. Rosenberg, 305
M. Schochter, et al., 63
P. Shanahan, 62
M. Shinbrot, et al., 398
J. M. Simões-Pereira, 185, 309, 401
S. Smale, 469
B. Weisfeiler, 306
M. Yacht, et al., 115
Names Withheld, 306, 398
MEETINGS OF THE AMS
Calendars of AMS Meetings, Inside Front Covers
Invited Speakers at AMS Meetings, 48, 95, 177, 226, 289, 373, 460
Meeting Announcements & Programs
January: Biloxi, 2
March: Honolulu, 49, 84
April: New York, 51, 93, 146
June: Iowa City, 52, 94, 156
July: Vancouver, 95, 164, 206
August: Duluth, 166, 210, 256
September: Stanford University, 225, 283, 336
November: Kent, 226, 285, 346
December: Birmingham, 286, 354, 434
January 1980: San Antonio, 358, 446
March, 1980: Boulder, 461

Short Course Announcements:
Game Theory and its Applications, Biloxi, 3
Operations Research: Mathematics and Models, Duluth, 167, 211, 257
Modern Statistics: Methods and Applications, San Antonio, 360, 447

Special Sessions, Organizers and Topics, 48, 101, 177, 225, 289, 373, 445

MISCELLANEOUS, 75, 130, 198, 242, 322, 414, 488

NEW AMS PUBLICATIONS, 73, 128, 197, 236, 320, 410, 483
(See also Subject Lists of AMS Publications)
NEWS AND ANNOUNCEMENTS, 66, 118, 185, 232, 310, 403, 464

OFFICERS AND COMMITTEE MEMBERS OF THE SOCIETY, 328

OFFICERS AND LECTURERS OF THE SOCIETY, 500

OFFICERS OF THE SOCIETY 1978 and 1979, 201

ORGANIZERS AND TOPICS OF SPECIAL SESSIONS, 48, 101, 177, 225, 289, 373, 445

PERSONAL ITEMS, 75, 130, 199, 242, 322, 421, 490

THE TOPICS IN PART 1 ARE: ALGEBRAIC K- AND L- THEORY; SURGERY AND SURGERY CLASSIFYING SPACES; GROUP ACTIONS ON MANIFOLDS, AND 3 AND 4 MANIFOLD THEORY.

THE TOPICS IN PART 2 ARE: STRUCTURE OF TOPOLOGICAL MANIFOLDS; LOW DIMENSIONAL MANIFOLDS; GEOMETRY OF DIFFERENTIAL MANIFOLDS AND ALGEBRAIC VARIETIES; H- SPACES, LOOP SPACES, AND CW COMPLEXES; PROBLEMS.


THESE ARE FOR THE MOST PART REPORTS OF RESEARCH IN THE AREA OF ALGEBRAIC TOPOLOGY AND THE OVERALL EFFECT IS AN OVERVIEW OF THE SUBJECT AT THIS TIME.
THE DECISION PROBLEM: Solvable Classes of Quantificational Formulas
Burton Dreben and Warren D. Goldfarb, Harvard University

Skolem and Herbrand addressed the decision problem by associating with each quantificational formula a set, usually infinite, of quantifier-free formulas. In this book, the authors build on that insight to illuminate the mathematical structures underlying solvability, and provide for the first time a unified treatment of the positive results of the decision problem for quantification theory. The results of this book, together with those of Lewis's Unsolvable Classes of Quantificational Formulas, delimit the boundary between solvable and unsolvable.


1979, c. 320 pp., illus. in preparation
Hardbound 02540 $27.50

UNSOVAILABLE CLASSES OF QUANTIFICATIONAL FORMULAS
Harry R. Lewis, Aiken Computation Laboratory, Harvard University

This volume is the first major published survey on unsolvability results for the predicate calculus since Suranyi's treatment in 1939. The book deals with the theoretical possibility of determining by mechanical means whether particular statements of mathematical logic can be true; this is the oldest problem in the theory of computability. Logicians, mathematicians, and computer scientists will welcome this publication.


1979, 214 pp., illus.
Paperbound 04069 $13.50

UNITARY GROUP REPRESENTATIONS in Physics, Probability, and Number Theory*
George W. Mackey, Harvard University

MATHEMATICS LECTURE NOTE SERIES

Here are Professor Mackey's well-known Oxford lectures finally in book form. The theory of unitary group representations in Hilbert space is a mathematical tool of considerable power and scope. It includes fourier analysis, spectral theory, and the representation theory of finite groups as special cases and may be regarded as a unification of these. The purpose of this book is to present the main outlines of this theory and then give a rather detailed account of its extensive applications to probability, quantum physics, and number theory.

"This is written in Mackey's usual eloquent and readable style and constitutes an invaluable guide to the literature in this area."

Times Higher Education Supplement (London)
Detailed contents available from publisher
1978, 416 pp., illus.
Hardbound 36702 $31.50
Paperbound 36703 $19.50

Prices are quoted in U.S. dollars. Outside U.S.A. prices may vary somewhat from those listed, reflecting distribution costs and currency fluctuations. Prices are subject to change without notice.

*W.A. Benjamin title
Volumes 7, 8, 9, 10
ENCYCLOPEDIA OF MATHEMATICS and Its Applications

Gian-Carlo Rota, Editor, Department of Mathematics, M.I.T.

Volume 7
MEASUREMENT THEORY
With Applications to Decisionmaking, Utility, and the Social Sciences
Section: Mathematics in the Social Sciences
Fred S. Roberts, Rutgers University

The purpose of this book is to present an introduction to the theory of measurement, and practicing mathematicians with no prior exposure to the subject will find this material interesting, both as mathematics in its own right and because of its applications.


Fall 1979, c. 500 pp., illus. 0-201-13506-X $24.50

Volume 8
ANGULAR MOMENTUM IN QUANTUM PHYSICS: Theory and Application
Section: Mathematics of Physics
L.C. Biedenharn, Duke University
J.D. Louck, Los Alamos Scientific Laboratory, University of California

The volume develops the theory of angular momentum from the viewpoint of a fundamental symmetry in nature and is valuable to mathematical and theoretical physicists and mathematicians.


Early 1980, c. 700 pp., illus. 0-201-13507-8

Volume 9
THE RACAH-WIGNER ALGEBRA QUANTUM THEORY
L.C. Biedenharn, Duke University, and J.D. Louck, Los Alamos Scientific Laboratory, University of California

Development of the algebraic aspects of angular momentum theory are covered in this volume, as well as the relationship between angular momentum theory and special topics in physics and mathematics.


1980, c. 700 pp., illus. 0-201-13508-6

Volume 10
PRODUCT INTEGRATION: With Applications to Differential Equations
John D. Dollard and Charles N. Friedman, Department of Mathematics, University of Texas. With a Foreword by Felix E. Browder, University of Chicago

Written for the general scientific audience, this volume gives a comprehensive account of the elementary theory and is a systematic treatise on product integration in modern language.


End 1979, c. 300 pp., illus. 0-201-13509-4 approx $22.50

The Encyclopedia is open-ended. Continuation orders are invited.

Prices are quoted in U.S. dollars. Outside U.S.A. prices must be increased slightly due to exchange of value. Prices are subject to change without notice

Addison-Wesley Publishing Company, Inc.
Advanced Book Program, Reading, Massachusetts 01867, U.S.A.

P.O. Box 363, Crows Nest N.S.W. 2065, Australia
West End House, 11 Hills Place, London W1R 2LR. U.K.
De La Reussestraat, 90, Amsterdam 1071, The Netherlands
36 Prince Andrew Pl., Don Mills, Ontario M3C 2T8, Canada

For other Advanced Book Program titles see inside back cover