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- "Hausdorff dimension of quasi-circles," R. Bowen
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American Mathematical Society

The AMERICAN MATHEMATICAL SOCIETY, founded in 1888, is the oldest society in the United States devoted to promoting the interests of mathematical scholarship and research. The Society serves its membership by publishing books and journals, holding meetings, and providing reviewing, indexing, employment information, and other services useful to the mathematical community.

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*Please consult the dues schedule on the next page for categories of membership.

Payment must be included with application. Checks should be made payable to the American Mathematical Society. Transfers from foreign banks may be made to the account of the American Mathematical Society, R.I. Hospital Trust National Bank, One Hospital Trust Plaza, Providence, Rhode Island 02903.

MEM 3– Notices, December 1980
DUES SCHEDULE
(For one-half year after June 30, pay one-half of the indicated dues.)

<table>
<thead>
<tr>
<th>Membership Type</th>
<th>Dues</th>
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<tr>
<td>Full year</td>
<td>$36 $48</td>
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<tr>
<td>One-half year</td>
<td>$18 $24</td>
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Ordinary member ................. $36 □ $48 □
Joint family member
(full rate) ........................ $36 □ $48 □
Joint family member
(reduced rate) ........................ $16 □ $28 □

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The AMS publishes small catalogs of a specialized nature and brochures about new books. If you wish to be on mailing lists to receive information about publications in fields of mathematics in which you have an interest, please look at the list of Mathematical Reviews sections below and list no more than five categories on your application for membership.

00 General
01 History and biography
03 Mathematical logic and foundations
04 Set theory
05 Combinatorics
06 Order, lattices, ordered algebraic structures
08 General mathematical systems
10 Number theory
12 Algebraic number theory, field theory and polynomials
13 Commutative rings and algebras
14 Algebraic geometry
15 Linear and multilinear algebra, matrix theory
16 Associative rings and algebras
17 Nonassociative rings and algebras
18 Category theory, homological algebra
20 Group theory and generalizations
22 Topological groups, Lie Groups
26 Real functions
28 Measure and integration
30 Functions of a complex variable
31 Potential theory
32 Several complex variables and analytic spaces
33 Special functions
34 Ordinary differential equations
35 Partial differential equations
39 Finite differences and functional equations
40 Sequences, series, summability
41 Approximations and expansions
42 Fourier analysis
43 Abstract harmonic analysis
44 Integral transforms, operational calculus
45 Integral equations
46 Functional analysis
47 Operator theory
49 Calculus of variations and optimal control, optimization
51 Geometry
52 Convex sets and related geometric topics
53 Differential geometry
54 General topology
55 Algebraic topology
57 Manifolds and cell complexes
58 Global analysis, analysis on manifolds
60 Probability theory and stochastic processes
62 Statistics
65 Numerical analysis
68 Computer science (including automata)
70 Mechanics of particles and systems
73 Mechanics of solids
76 Fluid mechanics
78 Optics, electromagnetic theory
80 Classical thermodynamics, heat transfer
81 Quantum mechanics
82 Statistical physics, structure of matter
83 Relativity
85 Astronomy and astrophysics
86 Geophysics
90 Economics, operations research, programming, games
92 Biology and behavioral sciences
93 Systems theory; control
94 Information and communications, circuits
The third chapter, "Mathematics in Print," also has been revised to cope with new methods of composition. It should be noted that the sections on rules for spacing between symbols, and mathematical equations in text and display have been useful to compositors setting up new systems for mathematics composition.

Other chapters and appendixes include the handling of manuscript in proof, processing a mathematics publication, style suggestions, a look at the future, a list of special fonts used in mathematics, German and Script alphabets, and a glossary.

Originally written as a manual to standardize copy editing procedures and to serve as a guide in the training of editorial personnel at the American Mathematical Society, it has been used extensively by copy editors of mathematics and compositors of research mathematics. There are several other books to assist the copy editor in preparing ordinary text, but this one is written specifically to assist in the preparation of mathematics text.

The author is the Director of Editorial Services at the AMS.

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[Notices is published eight times a year (January, February, April, June, August, October, November, December) by the American Mathematical Society at 201 Charles Street, Providence, RI 02904. Second class postage paid at Providence, RI and additional mailing offices. POSTMASTER: Send address change notices to Membership and Sales Department, American Mathematical Society, Post Office Box 6248, Providence, RI 02940.] Publication here of the Society's street address, and the other information in brackets above, is a technical requirement of the U.S. Postal Service. This address should never be used by correspondents, unless they plan to deliver their messages by hand.

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STATEMENT BY AMS COMMITTEE ON EMPLOYMENT AND EDUCATIONAL POLICY

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. Academic positions are 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, while for some years to come the number of openings in departments of mathematics will not increase over present levels, opportunities for employment in mathematics will continue, particularly in applied fields and outside the academic world. This trend is expected to continue.


COMMITTEE ON EMPLOYMENT AND EDUCATIONAL POLICY (December 1980)

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Arthur P. Mattuck
Donald C. Rung

Hans Schneider
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ASSISTANTSHIPS AND FELLOWSHIPS

In the Mathematical Sciences in 1981-1982

The list of assistantships and fellowships at universities includes 402 departments of mathematics, applied mathematics, statistics, computer science, and related mathematical disciplines; these represent 294 colleges and universities. Institutions in the United States are listed alphabetically by state, followed by Canadian institutions.

The number following "Faculty" is the number of faculty members in the department who are full time employees in the institution and at least half-time in the department; the number following "Published" is the number of those who have published a technical paper or book in the last three years.

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
- ANT ... Algebra or Number Theory
- AFA ... Analysis or Functional Analysis
- GT ... Geometry or Topology
- L ... Logic
- P ... Probability
- AM ... Applied Mathematics
- ME ... Mathematics Education
- CS ... Computer Science
- OR ... Operations Research
- S ... Statistics

Under the SERVICE REQUIRED column, hours per week section, "c" denotes contact hours.

For Graduate Study at Universities

<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
<th>STIPEND</th>
<th>FEES</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
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<tr>
<td>(number anticipated 1981-1982)</td>
<td>paid to student</td>
<td>paid by student ($)</td>
<td>hours per week</td>
<td>type of service</td>
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<td>3500</td>
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<td>40/credit</td>
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<td>Auburn University, Auburn 36849</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
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<td>Ben Fitzpatrick, Jr., Head</td>
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<td>5760–10260</td>
<td>12</td>
<td>960</td>
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<td>University of Alabama in Birmingham 35294</td>
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<td>M. E. Turner, Chairman</td>
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<tr>
<td>Fellowship (1)</td>
<td>5000</td>
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<td>ALABAMA</td>
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<td>Applications due: 4/15/81</td>
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<td>Bachelor's by inst. 475</td>
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<td>Bachelor's by dept. 3</td>
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<td>Applications due: 3/10/81</td>
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<td>Bachelor's by inst. 3292</td>
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<td>Bachelor's by inst. 1169</td>
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<td>GT 2. Total: 7</td>
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<td>Ph.D. (77/80) Other 2.</td>
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<td>Bachelor's by dept. 25</td>
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<td>University of Alabama in Huntsville 35899</td>
<td>Applications due: 3/81*</td>
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<td>4**</td>
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<td>F. Lee Cook, Chairman</td>
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<td>4500—5000 9**</td>
<td>4¢</td>
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<td>*Late applications considered if positions are still available. **Normally, summer assistantships are also available.</td>
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<tr>
<td>University of Alabama (Tuscaloosa), University 35486</td>
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<td>Faculty 30; Published 21</td>
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<td>C. Hobby, Chairman</td>
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<td>3700—5600 9 382*</td>
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<td>Teaching Assistantship (28)</td>
<td>9</td>
<td>382*</td>
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<td>*In state.</td>
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<td>University of Alaska, Fairbanks 99701</td>
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<td>3300—3600 9 Varies</td>
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<td>University of Arizona, Tucson 85721</td>
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<td>*Figures Include NASA Traineeships in Computational Fluid Dynamics. **1980-81 figures. An increase is expected in 1981-82.</td>
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</tbody>
</table>

The Department of Mathematics invites applications from outstanding students for a $5200 graduate fellowship and for teaching assistantships. The Department of Mathematics has graduate programs in mathematics leading to 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>
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<th>TYPE OF ASSISTANCE</th>
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<td>Faculty 48; Published 34</td>
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<td><strong>ARKANSAS</strong></td>
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<td>Master's by dept. 1</td>
</tr>
<tr>
<td>Faculty 5; Published 5</td>
<td>4100–4300 $12</td>
<td>20</td>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Applications due: 2/15/81</td>
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<tr>
<td>Faculty 26; Published 26</td>
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<tr>
<td>H. B. Keller, Executive Officer</td>
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<tr>
<td>Applications due: 2/15/81</td>
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<tr>
<td>Faculty 9; Published 9</td>
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<tr>
<td>Fellowship (4)</td>
<td>4200 $9</td>
<td>12-15</td>
<td>Grading, Teaching</td>
<td>Bachelor's by inst. 173</td>
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<tr>
<td>Teaching Assistantship (15)</td>
<td>3800 $9</td>
<td>12-15</td>
<td>Research</td>
<td>Bachelor's by dept. 10</td>
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<tr>
<td>Research Assistantship (4)</td>
<td>4100 $9</td>
<td>12-15</td>
<td>Research</td>
<td>Master's by dept. 2</td>
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<tr>
<td><strong>CALIFORNIA</strong></td>
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<td>Applications due: 4/1/81</td>
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<td>Ph.D. (77/80) AM 12. Total 12</td>
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<tr>
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<td>Applications due: 2/15/81</td>
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<tr>
<td>Faculty 25; Published 10</td>
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<td>Fellowship (4)</td>
<td>5000–6000 $12</td>
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<td>Ph.D. (77/80) ANT 3, AFA 3, L 1, S 1, Other 2. Total: 10</td>
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<td>Teaching Assistantship (18)</td>
<td>4520–5155 $9</td>
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<td>Research Assistantship (3)</td>
<td>4190–5305 $12</td>
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<td>*Tuition scholarship accompanies these awards.</td>
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<tr>
<td>California Institute of Technology, Pasadena 91125</td>
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<tr>
<td>California Polytechnic State University, San Luis Obispo 93407</td>
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<tr>
<td>Emile E. Attala, Head</td>
<td>4500 $9</td>
<td>10</td>
<td>Teaching</td>
<td>Bachelor's by inst. 3074</td>
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<tr>
<td>Teaching Assistantship (8)</td>
<td>3000 $9</td>
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</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 3/15/81</td>
<td>Faculty 47; Published 11</td>
<td>Bachelor's by inst. 3074</td>
<td></td>
</tr>
<tr>
<td>And STATISTICS</td>
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<td>Applications due: 6/15/81</td>
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<tr>
<td>Faculty 45; Published 12</td>
<td></td>
<td></td>
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<tr>
<td>John Fisher, Chairman</td>
<td>3400–6800 $9</td>
<td>3-7c</td>
<td>Tutoring</td>
<td>Bachelor's by inst. 1000</td>
</tr>
<tr>
<td>Teaching Assistantship (7-10)</td>
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<td>10-20</td>
<td>Grading</td>
<td>Bachelor's by dept. 25</td>
</tr>
<tr>
<td>Graduate Assistantship (2)</td>
<td>2559 $9</td>
<td>10c</td>
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<td>Master's by dept. 3</td>
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<tr>
<td>Part-time Instructorship (8)</td>
<td>2739 $9</td>
<td>3c</td>
<td>Teaching</td>
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</tr>
<tr>
<td>*Registration fees $78–82. Nonresident: $40 per quarter unit, maximum of $720.</td>
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<tr>
<td>California State Polytechnic University, Pomona 91768</td>
<td>Applications due: 6/81</td>
<td>Faculty 20; Published 5</td>
<td>Bachelor's by inst. 2340</td>
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<td>DEPARTMENT OF MATHEMATICS</td>
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<tr>
<td>And COMPUTER SCIENCE</td>
<td>Applications due: 6/15/81</td>
<td>Faculty 45; Published 12</td>
<td>Bachelor's by inst. 1000</td>
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<td>Applications due: 6/81</td>
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<tr>
<td>Faculty 20; Published 5</td>
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<tr>
<td>A. E. Labare, Jr., Chairman</td>
<td>2265–2355 $9</td>
<td>10-20</td>
<td>Grading</td>
<td>Bachelor's by dept. 14</td>
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<tr>
<td>Graduate Assistantship (4-6)</td>
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<td>Master's by dept. 2</td>
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<tr>
<td>*$110 per semester, resident.</td>
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<td>TYPE OF ASSISTANCE</td>
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<td>DEGREES AWARDED</td>
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<td>hours per week</td>
<td>Academic year</td>
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<tr>
<td>California State University, Fullerton 92634</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 5/1/81</td>
<td>Faculty 28; Published 14</td>
<td>Bachelor's by inst. 3681</td>
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<tr>
<td>James O. Friel, Chairman</td>
<td>1748–5748 9</td>
<td>99-114. 4-6 Teaching</td>
<td>Bachelor's by dept. 19</td>
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<tr>
<td>Teaching Assistantship (8)</td>
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<td>Master's by dept. 6</td>
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<tr>
<td>California State University, Hayward 94542</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: Open</td>
<td>Faculty 32; Published 12</td>
<td>Bachelor's by dept. 25</td>
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<tr>
<td>Kenneth R. Rebman, Chairman</td>
<td>4371 9</td>
<td>72/qtr. Teaching</td>
<td>Master's by dept. 3</td>
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<tr>
<td>Teaching Assistantship (4-5)</td>
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<td>DEPARTMENT OF STATISTICS</td>
<td>Faculty 9; Published 3</td>
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<td>Bachelor's by dept. 11</td>
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<tr>
<td>Dean Fearn, Chairman</td>
<td>125/mo.— 475/mo.</td>
<td>72/qtr. 5-20 Grading</td>
<td>Master's by dept. 12</td>
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<tr>
<td>Graduate Assistantship (5)</td>
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<td>California State University, Long Beach 90840</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 5/1/81</td>
<td>Faculty 44</td>
<td>Bachelor's by inst. 4000</td>
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<tr>
<td>Arthur Gittleman, Chairman</td>
<td>4864–7968 12</td>
<td>74/qtr. 4-6 Teaching</td>
<td>Bachelor's by dept. 40</td>
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<td>Master's by dept. 5</td>
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<td>California State University, Los Angeles 90032</td>
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<td>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</td>
<td>Applications due: 9/1/81</td>
<td>Faculty 24; Published 14</td>
<td>Bachelor's by inst. 1700</td>
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<td>Stewart Venit, Chairman</td>
<td>1000–2500 9</td>
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<td>Bachelor's by dept. 35</td>
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<td>Teaching Assistantship</td>
<td>5000 9</td>
<td>155/unit</td>
<td>Master's by dept. 7</td>
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<tr>
<td>Claremont Graduate School, Claremont 91711</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 2/15/81</td>
<td>Faculty 7; Published 4</td>
<td>Master's by dept. 6</td>
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</tr>
<tr>
<td>Robert Williamson, Chairman</td>
<td>5476–5990 9</td>
<td>* 6 Teaching</td>
<td>Ph.D. (77/80) ANT 2, AFA 2, AM 1. Total: 5</td>
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<tr>
<td>Fellowship (5)</td>
<td>Waived</td>
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<tr>
<td>Tuition Waiver (6)</td>
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<tr>
<td>Clinic Team Leader (8)</td>
<td>500</td>
<td>103/cr. hr.</td>
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<td>Loyola Marymount University, Los Angeles 90045</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 6/1/80</td>
<td>Faculty 11; Published 4</td>
<td>Bachelor's by inst. 680</td>
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</tr>
<tr>
<td>Warren Wright, Chairman</td>
<td>5000 9</td>
<td>155/unit</td>
<td>Bachelor's by dept. 7</td>
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<tr>
<td>Scholarship (2)</td>
<td>103/cr. hr.</td>
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<td>Master's by dept. 3</td>
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<td>San Diego State University, San Diego 92182</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICAL SCIENCES</td>
<td>Applications due: 4/15/81</td>
<td>Faculty 56; Published 18</td>
<td>Bachelor's by inst. 4148</td>
<td></td>
</tr>
<tr>
<td>R. L. Van de Wetering, Chairman</td>
<td>5476–5990 9</td>
<td>* 6 Teaching</td>
<td>Bachelor's by dept. 59</td>
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<tr>
<td>Teaching Assistantship (20)</td>
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<td>Master's by dept. 7</td>
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<tr>
<td>*$97 per 6 units.</td>
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</tbody>
</table>

**CLAREMONTE 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. 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," describes this real-world component of applied mathematics training in Claremont.

A substantial number of tuition waivers (about $4050) 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
<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
<th>STIPEND</th>
<th>FEES</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
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</thead>
<tbody>
<tr>
<td>(number anticipated</td>
<td>paid to student</td>
<td>paid by</td>
<td>hours per week</td>
<td>Academic year</td>
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**San Francisco State University, San Francisco 94132**

**DEPARTMENT OF MATHEMATICS**

Faculty 31; Published 6

<table>
<thead>
<tr>
<th>Teaching Assistantship (13)</th>
<th>1400/sem.—</th>
<th>$250*</th>
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<tbody>
<tr>
<td>Research Assistantship (9)</td>
<td>565/sem.—</td>
<td>5-20</td>
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<tr>
<td>*Depending on residency.</td>
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**San Jose State University, San Jose 95192**

**DEPARTMENT OF MATHEMATICS**

Applications due: 4/15/81

<table>
<thead>
<tr>
<th>Teaching Fellowship (18–20)</th>
<th>3000–6500</th>
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<tbody>
<tr>
<td>*Nonresidents &amp; foreign students pay an additional $72 per unit.</td>
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**Stanford University, Stanford 94305**

**DEPARTMENT OF MATHEMATICS**

Applications due: 1/15/81

<table>
<thead>
<tr>
<th>Graduate Assistantship (40)*</th>
<th>3700–4200</th>
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<td>*Graduate Assistants serve for one quarter as Teaching Fellows, for one quarter as Course Assistants, and for one quarter as Research Assistants, or serve for three quarters as Course Assistants. **Teaching Fellows have three contact hours/week, and have sole responsibility for a class. Course Assistants have six contact hours/week. Research Assistants have no formal duties.</td>
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**DEPARTMENT OF STATISTICS**

Applications due: 1/15/81

<table>
<thead>
<tr>
<th>Fellowship* (10)</th>
<th>4000</th>
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<tbody>
<tr>
<td>*All financial assistships are combinations of teaching and research assistships and university fellowship funds.</td>
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**University of California, Berkeley 94720**

**DEPARTMENT OF MATHEMATICS**

Applications due: 12/1/80

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<thead>
<tr>
<th>Fellowship (36)</th>
<th>900–6426.50</th>
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<tr>
<td>*New students: 12/1/80. Continuing students: fellowships 12/1/80; teaching assistantships, 2/1/81.</td>
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**DEPARTMENT OF STATISTICS**

Applications due: 12/1/80

<table>
<thead>
<tr>
<th>Fellowship</th>
<th>1000–4000</th>
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<tbody>
<tr>
<td>*Plus part-time faculty in this interdisciplinary group. **Apply to Mathematics Department by date set by that department.</td>
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**Graduate Group in Science and Mathematics Education**

Applications due: 12/1/80

<table>
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<tr>
<th>Fellowship (8)***</th>
<th>3200</th>
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</thead>
<tbody>
<tr>
<td>*Assistantships: 1/15/81; Fellowships: 12/1/80. **Nonresidents subject to an additional $800 per quarter tuition. ***Most research assistants hold concurrent teaching assistant appointments.</td>
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</tr>
<tr>
<td>TYPE OF ASSISTANCE</td>
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<tr>
<td></td>
<td>(number anticipated</td>
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<td>1981-1982)</td>
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<tr>
<td>University of California, Davis 95616</td>
<td>Applications due: 1/15/81</td>
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<td>DEPARTMENT OF MATHEMATICS</td>
<td>Faculty 34; Published 25</td>
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<tr>
<td>Carlos R. Borges, Chairman</td>
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<tr>
<td>Fellowship (4)</td>
<td>3600 9</td>
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<tr>
<td>Teaching Assistantship (21)</td>
<td>6885 9</td>
</tr>
<tr>
<td>Associateship (2)</td>
<td>6972 9</td>
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<tr>
<td>Community Teaching</td>
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</tr>
<tr>
<td>Fellowship (5)</td>
<td>6885 9</td>
</tr>
<tr>
<td>University of California, Irvine 92717</td>
<td>Applications due: 4/1/81</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Faculty 27; Published 18</td>
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<tr>
<td>James J. Yeh, Chairman</td>
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<td>Teaching Assistantship (25)</td>
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<td>University of California, Los Angeles 90024</td>
<td>Applications due: 7/81</td>
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<td>DEPARTMENT OF BIOMATHEMATICS</td>
<td>Faculty 8; Published 8</td>
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<tr>
<td>Carol M. Newton, Chairman</td>
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</tr>
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<td>Teaching Assistantship (1)</td>
<td>729.50/mo. 9 * 20</td>
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<td>*$3200 nonresident.</td>
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<td>Applications due: 12/30/80</td>
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<tr>
<td>Alfred W. Hales, Chairman</td>
<td>Faculty 61; Published 56</td>
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<tr>
<td>Fellowship (10)</td>
<td>5000 9            Waived</td>
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<tr>
<td>Teaching Fellowship (12)</td>
<td>6885-8073 9 807 4c</td>
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<tr>
<td>Teaching Assistantship (64)</td>
<td>6885-8073 9 807 4c</td>
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<tr>
<td>Research Assistantship (1-4)</td>
<td>6973-8020 12 807-3207 Research</td>
</tr>
<tr>
<td>Fellowship (4-5)</td>
<td>6885 9            807-3207 5c Teaching</td>
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<td>University of California, Riverside 92521</td>
<td>Applications due: 2/1/81*</td>
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<td>DEPARTMENT OF STATISTICS</td>
<td>Faculty 11; Published 10</td>
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<tr>
<td>S. James Press, Chairman</td>
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</tr>
<tr>
<td>Fellowship (1)</td>
<td>3600-4200 9 **</td>
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<tr>
<td>Teaching Assistantship (6)</td>
<td>6885-7500 9 **</td>
</tr>
<tr>
<td>Research Assistantship (4)</td>
<td>5337-6000 9-12 **</td>
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<td>Associate Instructorship (1)</td>
<td>6972-7500 9 **</td>
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<tr>
<td>*For Fellowships, no deadline for assistantships.</td>
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<td>**Resident: $900; nonresident: $3500.</td>
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<tr>
<td>University of California, San Diego, La Jolla 92093</td>
<td>Applications due: 1/15/81</td>
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<td>DEPARTMENT OF MATHEMATICS</td>
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<td>Burton Rodin, Chairman</td>
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<tr>
<td>Fellowship (4)</td>
<td>6000-8500 12</td>
</tr>
<tr>
<td>Teaching Assistantship (40)</td>
<td>6885 9            *</td>
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<tr>
<td>Research Assistantship (5)</td>
<td>7100-8500 9-12 *</td>
</tr>
<tr>
<td>Scholarship (20)</td>
<td>Fees and/or tuition **</td>
</tr>
<tr>
<td>*Tuition payable by student when not included in stipend. In 1980-81 all graduate students (resident and nonresident) pay per quarter $263. Nonresident graduate students pay per quarter $800 tuition in addition to the above $263. **The 20 Tuition and/or Fee Scholarships are given in addition to the Fellowships, Teaching and Research Assistantships.</td>
<td></td>
</tr>
<tr>
<td>University of California, Santa Cruz 95064</td>
<td>Applications due: 1/15/81</td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Faculty 16; Published 14</td>
</tr>
<tr>
<td>Gerhard Ringel, Chairman</td>
<td></td>
</tr>
<tr>
<td>Fellowship*</td>
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<tr>
<td>Teaching Assistantship (21)</td>
<td>891 21</td>
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<tr>
<td>Calif. Teaching Fellowship (2)</td>
<td>891</td>
</tr>
<tr>
<td>*Information unavailable at this time.</td>
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</tr>
<tr>
<td>University of Southern California, Los Angeles 90007</td>
<td>Applications due: 3/81*</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Faculty 28; Published 28</td>
</tr>
<tr>
<td>W. A. Harris, Jr., Chairman</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistantship (60)</td>
<td>5595-6192 6c</td>
</tr>
<tr>
<td>*For fall; 12/1 for spring.</td>
<td></td>
</tr>
</tbody>
</table>
The Department offers the degrees 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 fellowships are available for new graduate students. Fellows earn a tax-free stipend of $5000 and pay no tuition or fees.

Teaching Assistantships. About 20-25 teaching assistantships are available for new graduate students. Teaching assistants teach four hours of class and hold three office hours each week and they help grade examinations. They receive a salary of $6885-8073 (depending on experience) from which they must pay $807 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 $435 per month + fees (tuition if required) for 9 months. Research Assistantships (approximately $593 per month for 11 months). Teaching Assistantships (approximately $765 per month for 9 months). San Diego Fellowship (for educationally disadvantaged students; approximately $435 per month + fees for 12 months).

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

THE DEPARTMENT OF MATHEMATICS
OF THE
UNIVERSITY OF SOUTHERN CALIFORNIA

offers graduate programs leading to the M.A., M.S. and Ph.D. degrees. The Department's 40 faculty members are actively engaged in research covering such major areas as algebraic topology, associative ring theory, biomedicine, combinatorial analysis, control theory, differential geometry, functional analysis, number theory, numerical analysis, optimization, ordinary and partial differential equations, probability, and the mathematics of finance and economics. The M.S. and its options emphasize applied mathematics, and include a Practicum.

Of course excellent library and extensive computing facilities are available. In addition to the Department's regular seminars and colloquia there is a vigorous Distinguished Lecture Series featuring renowned speakers in all areas of mathematics. Financial aid is available to almost all students in the form of teaching or research assistantships. Teaching duties are waived for academically superior applicants.

For further information and application forms, please contact:

Graduate Vice-Chairman
Department of Mathematics
University of Southern California
Los Angeles, California 90007
COLORADO

Colorado School of Mines, Golden 80401
DEPARTMENT OF MATHEMATICS
Ardel J. Boes, Head
Teaching Assistantship (5) 3825—4250 8 1/2 12
Research Assistantship (2) 3825—4250 8 1/2
Stipend paid to student
12 Teaching
12 Research
1981-1982
Applications due: 6/1/81
Faculty 16; Published 10
Bachelor's by inst. 380
Bachelor's by dept. 6
Master's by dept. 2
Ph.D. (77/80) AM 1. Total: 1

Colorado State University, Fort Collins 80523
DEPARTMENT OF MATHEMATICS
Robert E. Gaines, Head
Teaching Assistantship (32) 5000—5500 9 209
Research Assistantship (5) 5000—5500 9—12
Scholarship (2)
Applications due: 3/15/81
Faculty 34; Published 28
Bachelor's by inst. 2829
Bachelor's by dept. 17
Master's by dept. 15
Ph.D. (77/80) AM 2, Other 2. Total: 4

University of Colorado, Boulder 80309
DEPARTMENT OF MATHEMATICS
Daniel Stroock, Chairman
Fellowship (4) 3500 9
Teaching F-89 (10) 6260 9 120/3 credit 20
Teaching Assistantship (40) 4624 9
Applications due: 1/31/81
Faculty 47; Published 35
Bachelor's by inst. 2035
Bachelor's by dept. 93
Master's by dept. 7
Ph.D. (77/80) ANT 2, AFA 6, L 4, P 1, Other 4, Total: 17

University of Denver, Denver 80208
DEPARTMENT OF MATHEMATICS
AND COMPUTER SCIENCE
Stanley Gudder, Head
Teaching Assistantship (10) 3690 9
Scholarship (6)
Applications due: 4/1/81
Faculty 19; Published 7
Bachelor's by inst. 834
Bachelor's by dept. 11
Master's by dept. 10
Ph.D. (77/80) AFA 1. Total: 1

University of Northern Colorado, Greeley 80639
DEPARTMENT OF MATHEMATICS
Robert L. Heiny, Chairman
Teaching Assistantship (6) 4226—4681* 9 ** 6 Teaching
Graduate Scholarship Negligible if any
Applications due: 2/28/81
Faculty 13; Published 4
Bachelor's by inst. 1570
Bachelor's by dept. 21
Master's by dept. 4
Ph.D. (77/80) AFA 3, GT 1, L 1, S 2, ME 6. Total: 13

CONNECTICUT

Central Connecticut State College, New Britain 06050
DIVISION OF MATHEMATICS
G. B. Miller and S. A. Bacon, Chairmen
Teaching Fellowship (1 1/2) 1440/sem 9 * 6
Applications due: 6/15/81
Faculty 33; Published 3
Bachelor's by inst. 1440
Bachelor's by dept. 39
Master's by dept. 6
*Resident: $206 per semester.

**1980-81 figures: Resident, $305 per quarter; nonresident, $558 per quarter.

*Based on 1980-81 figures.

DEPARTMENT OF STATISTICS
AND RESEARCH METHODS
R. M. Lynch, Chairman
Teaching Assistantship (2) 2340—4680 9 925 10-20
Scholarship (1) 1359—1500 9 925
Applications due: 6/1/81
Faculty 5; Published 5
Bachelor's by inst. 1570
Master's by dept. 8
Ph.D. (77/80) AFA 3, P 2, S 2, CS 1, OR 4, Other 1. Total: 13

DEGREES AWARDED
Academic year
Colorado
1979-1980
Bachelor's by inst. 380
Bachelor's by dept. 6
Master's by dept. 2
Ph.D. (77/80) AM 1. Total: 1
Bachelor's by inst. 2829
Bachelor's by dept. 17
Master's by dept. 15
Ph.D. (77/80) AM 2, Other 2. Total: 4
Bachelor's by inst. 2035
Bachelor's by dept. 93
Master's by dept. 7
Bachelor's by inst. 834
Bachelor's by dept. 21
Master's by dept. 4
Ph.D. (77/80) AFA 1. Total: 1
Bachelor's by inst. 1570
Bachelor's by dept. 21
Master's by dept. 4
Ph.D. (77/80) AFA 3, GT 1, L 1, S 2, ME 6. Total: 13
Bachelor's by inst. 1440
Bachelor's by dept. 39
Master's by dept. 6
Ph.D. (77/80) AFA 3, P 2, S 2, CS 1, OR 4, Other 1. Total: 13
<table>
<thead>
<tr>
<th>University of Connecticut, Storrs 06268</th>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: Open</th>
<th>Bachelor's by inst. 2925</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J. L. Tollefson, Head</td>
<td>Faculty 35; Published 27</td>
<td>Bachelor's by dept. 40</td>
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<tr>
<td>Fellowship (6)</td>
<td>2000–5000 9</td>
<td>9</td>
<td>Master's by dept. 4</td>
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<tr>
<td>Teaching Assistantship (22)</td>
<td>4375–5430 9</td>
<td>480</td>
<td>Ph.D. (77/80) ANT 1, AFA 2, AM 1. Total: 4</td>
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<tr>
<td>Research Assistantship (2)</td>
<td>3000–5000 9</td>
<td>480</td>
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<tr>
<td>Lectureship (6)</td>
<td>4200–4900 9</td>
<td>6–8</td>
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<tr>
<td>DEPARTMENT OF STATISTICS</td>
<td>Applications due: 3/15/81</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Gottfried E. Noether, Head</td>
<td>Faculty 9; Published 8</td>
<td>5 Teaching</td>
<td></td>
</tr>
<tr>
<td>Teaching Fellowship (6)</td>
<td>3000–3500 9</td>
<td>10</td>
<td>Ph.D. (77/80) S 2. Total: 2</td>
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<tr>
<td>Teaching Assistantship (2)</td>
<td>4400–5400 9</td>
<td>4400–5400 9</td>
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<tr>
<td>Summer Support (Varies)</td>
<td>800–2125 3</td>
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<tr>
<th>Wesleyan University, Middletown 06457</th>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 3/15/81</th>
<th>Bachelor's by inst. 577</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W. Wistar Comfort, Head</td>
<td>Faculty 14; Published 9</td>
<td>Bachelor's by dept. 25</td>
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<tr>
<td>Teaching Assistantship (12)</td>
<td>4100–5225 9</td>
<td>Waived</td>
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</tr>
<tr>
<td>Summer Support (Varies)</td>
<td>800–2125 3</td>
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<tr>
<th>Yale University, New Haven 06520</th>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 1/20/81</th>
<th>Bachelor's by inst. 1237</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>R. H. Szczarba, Chairman</td>
<td>Faculty 27; Published 27</td>
<td>Bachelor's by dept. 22</td>
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<tr>
<td>Fellowship (12)</td>
<td>3000 9</td>
<td>3000</td>
<td>Master's by dept. 2</td>
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<tr>
<td>Teaching Assistantship (4)</td>
<td>4050 9</td>
<td>4050</td>
<td>Ph.D. (77/80) S 6. Total: 6</td>
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<table>
<thead>
<tr>
<th>Delaware</th>
<th>Applications due: 1/20/81</th>
<th>Bachelor's by inst. 1237</th>
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<tbody>
<tr>
<td></td>
<td>I. Richard Savage, Chairman</td>
<td>Faculty 6; Published 6</td>
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<tr>
<td>Fellowship (12)</td>
<td>3000 9</td>
<td>3000</td>
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<tr>
<td>Research Assistantship (4)</td>
<td>4050 9</td>
<td>4050</td>
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<table>
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<tr>
<th>University of Delaware, Newark 19711</th>
<th>DEPARTMENT OF MATHEMATICAL SCIENCES</th>
<th>Applications due: 3/15/81</th>
<th>Bachelor's by inst. 2654</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Ivar Stakgold, Chairman</td>
<td>Faculty 38; Published 34</td>
<td>Bachelor's by dept. 29</td>
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<tr>
<td>Fellowship (1)</td>
<td>4970–5270 9</td>
<td>4970–5270 9</td>
<td>Master's by dept. 7</td>
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<tr>
<td>Teaching Assistantship (28)</td>
<td>4770–5270 9</td>
<td>4770–5270 9</td>
<td>Ph.D. (77/80) AFA 3, GT 6, L 3, Other 1. Total: 23</td>
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<td>Research Assistantship (5)</td>
<td>4770–5270 9</td>
<td>4770–5270 9</td>
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<td>Scholarship (1)</td>
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<th>DISTRICT OF COLUMBIA</th>
<th>Applications due: 5/81</th>
<th>Bachelor's by inst. 1500</th>
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<tbody>
<tr>
<td>American University, Washington 20016</td>
<td>DEPARTMENT OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE</td>
<td>Faculty 22; Published 17</td>
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<tr>
<td></td>
<td>Mary Gray, Head</td>
<td></td>
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<tr>
<td>Fellowship (1)</td>
<td>3700–3700 9</td>
<td>3–7c</td>
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<tr>
<td>Teaching Assistantship (12)</td>
<td>3700–6300 9</td>
<td>3–7c</td>
</tr>
<tr>
<td>Special Opportunity (2)</td>
<td>3700–6300 9</td>
<td>3–7c</td>
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<table>
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<tr>
<th>Catholic University of America, Washington 20054</th>
<th>DEPARTMENT OF MATHEMATICS</th>
<th>Applications due: 5/30/81</th>
<th>Bachelor's by inst. 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Francis Sullivan, Chairman</td>
<td>2900 9</td>
<td>2900</td>
<td>Bachelor's by dept. 4</td>
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<tr>
<td>Teaching Assistantship (4)</td>
<td>2900 9</td>
<td>2900</td>
<td>Master's by dept. 4</td>
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<tr>
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<td>4c Teaching</td>
<td>Ph.D. (77/80) AFA 3. Total: 3</td>
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<table>
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<th>George Washington University, Washington 20052</th>
<th>DEPARTMENT OF OPERATIONS RESEARCH</th>
<th>Applications due: 3/1/81</th>
<th>Master's by dept. 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donald Gross, Chairman</td>
<td>7500–9400 9–12 137/sem. hr. 20</td>
<td>Research</td>
<td>Ph.D. (77/80) OR 13. Total: 13</td>
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<tr>
<td>Research Assistantship (1–4)</td>
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<tr>
<td>TYPE OF ASSISTANCE</td>
<td>STIPEND</td>
<td>FEES</td>
<td>SERVICE REQUIRED</td>
</tr>
<tr>
<td>--------------------</td>
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<td>-----------------</td>
</tr>
<tr>
<td>(number anticipated</td>
<td>paid to student</td>
<td>paid by student ($</td>
<td>hours per week</td>
</tr>
<tr>
<td>Howard University, Washington 20059</td>
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</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 5/30/81</td>
<td>Faculty 26; Published 14</td>
<td>Bachelor's by inst. 900</td>
</tr>
<tr>
<td>James A. Donaldson, Chairman</td>
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<td>Bachelor's by dept. 10</td>
</tr>
<tr>
<td>Fellowship (2)</td>
<td>4493 9</td>
<td>100</td>
<td>20 Research</td>
</tr>
<tr>
<td>Teaching Assistantship (10)</td>
<td>4493 9</td>
<td>100</td>
<td>10 Teaching</td>
</tr>
</tbody>
</table>

**FLORIDA**

Florida Atlantic University, Boca Raton

DEPARTMENT OF MATHEMATICS

Applications due: 9/25/81

Tomas P. Schonbek, Chairman

Teaching Assistantship (3) 2400—4000 9 * 4 Teaching

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

Florida International University, Miami 33199

APPLICATIONS DUE: 1/15/81

DEPARTMENT OF MATHEMATICAL SCIENCES

Applications due: Open

Samuel Shapiro, Chairman

Teaching Assistantship (Varies) 3600 9 * 8

*May be waived.

Florida State University, Tallahassee 32306

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Applications due: 1/15/81

John L. Bryant, Chairman

Fellowship (3) 6000 12 22/hr.*

Teaching Fellowship (1) 6000 12 22/hr.*

Teaching Assistantship (33) 5000—6000 9 22/hr.* 6 Teaching

Research Assistantship (4) 5000—6000 9 22/hr.* 20 Research

Minority Fellowship (5) 5900 12

*Plus $40/hr. if out of state, unless waived.

University of Central Florida, Orlando 32816

DEPARTMENT OF COMPUTER SCIENCE

Applications due: 2/1/81

Terry J. Frederick, Chairman

Fellowship (2) 5400 9 Varies

Teaching Assistantship (10) 3600—7900 9 Varies 20

Research Assistantship (5) 3600—7900 9 Varies 20

Scholarship (2) 1200 9 Varies

DEPARTMENT OF MATHEMATICS AND STATISTICS

Applications due: 3/30/81

J. M. Anthony, Chairman

Fellowship (2) 4500 9 22.00/qtr. hr. 20 Grading, teaching

University of Florida, Gainesville 32611

DEPARTMENT OF MATHEMATICS

Applications due: 3/1/81

A. R. Bednarek, Chairman

Fellowship (3) 4400—6000 9 *

Teaching Fellowship (5)** 1000 9 *

Teaching Assistantship (40) 5000—6050*** 9 * 6 Teaching

*$22 per credit hour for all graduate courses, except research hours.

**Supplemental fellowship ($1000 added to basic 1/3-time teaching assistantship).

***1/2-time.

DEPARTMENT OF STATISTICS

Applications due: 3/15/81

R. L. Scheaffer, Chairman

Fellowship (1) 1000—5500 9 22/hr. 13-20 Grading, teaching

Teaching Assistantship (14) 4400—7000 9 22/hr. 13-20 Research

Research Assistantship (20) 4400—7000 9 22/hr. 13-20 Research

University of Miami, Coral Gables 33124

DEPARTMENT OF MANAGEMENT SCIENCE

Applications due: 4/30/81

Joseph Moder, Chairman

Teaching Assistantship (5) 2000 9 150 fee 15-20 Grading, Research
<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
<th>STIPEND</th>
<th>FEES</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
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<td></td>
<td>Academic year</td>
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<td></td>
<td>(number anticipated)</td>
<td>paid to student</td>
<td>paid by student ($)</td>
<td>hours per week</td>
</tr>
<tr>
<td></td>
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<td>months</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td></td>
<td></td>
<td></td>
<td>Bachelor's by inst.</td>
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<tr>
<td>Chair Ahmad, Chairman</td>
<td></td>
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<td></td>
<td>Bachelor's by dept.</td>
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<tr>
<td>Fellowship (3)</td>
<td>4000–4300</td>
<td>9</td>
<td>Research</td>
<td>Master's by dept.</td>
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<tr>
<td>Teaching Assistantship (20)</td>
<td>9</td>
<td></td>
<td>6c Teaching</td>
<td>Ph.D. (77/80) ANT 1, GT 3, Other 1. Total: 5</td>
</tr>
</tbody>
</table>

University of North Florida, Jacksonville 32216

DEPARTMENT OF MATHEMATICAL SCIENCES

W. H. Caldwell, Chairman

Teaching Assistantship (2) 3000–4800 9 22/cr. hr. 20 Teaching

University of South Florida, Tampa 33620

DEPARTMENT OF MATHEMATICS

M. N. Manougian, Chairman

Fellowship (2) 4000 9
Teaching Assistantship (30) 5070–5850 9 22/cr. hr.* 8c
Center for Mathematical Services (2) 5070–5850 9 22/cr. hr.* 20

*Some tuition scholarships available.

University of West Florida, Pensacola 32503

DEPARTMENT OF MATHEMATICS AND STATISTICS

O. L. Sherry, Chairman

Teaching Assistantship (3) 2200 9 20 Tutoring

GEORGIA

Augusta College, Augusta 30904

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Jerry Sue Townsend, Chairman

Teaching Assistantship (1) 2600 9 5c

Emory University, Atlanta 30322

DEPARTMENT OF MATHEMATICS

Trevor Evans, Chairman

Teaching Assistantship (10) 5400* 9 Waived 4c

*Additional support may be available in the summer quarter.

Georgia State University, Atlanta 30303

DEPARTMENT OF MATHEMATICS

Fred A. Massey, Chairman

Research Assistantship (4) 1800–1800 9 13.75/hr. 13

UNIVERSITY OF SOUTH FLORIDA

TAMPA, FLORIDA

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

Our 28 full time faculty members, including a member of the National Academy of Sciences and Guggenheim Fellows, represent most areas of pure and applied mathematics and statistics. Interdisciplinary programs with the College of Engineering and the College of Medicine are available. Our graduate students enjoy the personal attention which comes from having fewer than two students per faculty member.

The University has about 25,000 students and its main campus is located at the north edge of beautiful Tampa, Florida. In addition to the warm and sunny climate, the rapidly growing Tampa Bay area provides 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 and Research Assistantships.

For further information, write to:

DR. M. N. MANOUGIAN, Chairman, Department of Mathematics
University of South Florida, Tampa, Florida 33620
TYPE OF ASSISTANCE
(number anticipated
1981-1982)

STIPEND
paid to student
dollars

FEES
paid by
student ($)

SERVICE REQUIRED
hours
per week
of service

DEGREES AWARDED
Academic year
1979-1980

University of Georgia, Athens 30602

DEPARTMENT OF MATHEMATICS
J. C. Cantrell, Head

Teaching Assistantship (10) 4200 9 302.50/qtr. 12 Teaching
Non-teaching Assistantship (6) 4200 9 302.50/qtr. 12 Grading

Applications due: 2/15/81
Faculty 47; Published 41
Bachelor's by inst. 5658
Bachelor's by dept. 16
Master's by dept. 1
Ph.D. (77/80) ANT 2, AFA 1,
GT 2, AM 1. Total 6

DEPARTMENT OF MATHEMATICS EDUCATION
James W. Wilson, Head

Teaching Assistantship (20) 4500–5950 9 675 13-18
Research Assistantship (5) 4500–5950 9 675 13.18

Applications due: 2/15/81
Faculty 10; Published 9
Bachelor's by inst. 5658
Bachelor's by dept. 20
Master's by dept. 8
Ph.D. (77/80) ME 4. Total: 4

DEPARTMENT OF STATISTICS
AND COMPUTER SCIENCE
Lynne Billard, Head

Teaching Assistantship (13) 4200–4488 9 approx. 300 13 Grading, teaching, research

Applications due: 3/1/81
Faculty 13; Published 5
Bachelor's by inst. 5658
Bachelor's by dept. 39
Master's by dept. 6

HAWAII

University of Hawaii at Manoa, Honolulu 96822

DEPARTMENT OF INFORMATION
AND COMPUTER SCIENCES
W. Wesley Peterson, Chairman

Teaching Assistantship (6) 5016–5604 9 20 Teaching, consulting
Research Assistantship (3) 5856–6456 11 20 Research

Applications due: 2/1/81
Faculty 7
Bachelor's by inst. 2756
Bachelor's by dept. 51
Master's by dept. 13

DEPARTMENT OF MATHEMATICS
Tom S. Pitcher, Chairman

Teaching Assistantship (11) 5016–5064 9 40 3-4 Teaching

Applications due: 3/1/81
Faculty 36; Published 35
Bachelor's by inst. 2756
Bachelor's by dept. 16
Master's by dept. 2
Ph.D. (77/80) S 1. Total: 1

DEPARTMENT OF PUBLIC HEALTH SCIENCES
George Rhoads, Chairman

Teaching Assistantship (1) 3700 9 20
Traineeship (2) 3500

Applications due: 2/81
Faculty 4; Published 4
Bachelor's by inst. 2756
Bachelor's by dept. 16
Master's by dept. 2
Ph.D. (77/80) S 1. Total: 1

IDAHO

Idaho State University, Pocatello 83209

DEPARTMENT OF MATHEMATICS
Lyle Cook, Chairman

Teaching Assistantship (5) 3300 9 4-5* Teaching

Applications due: 3/15/81*
Faculty 12; Published 4
Bachelor's by inst. 633
Bachelor's by dept. 5
Master's by dept. 3
Ph.D. (77/80) ANT 2, AFA 1,
AM 2. Total: 5

*Late applications considered.

University of Idaho, Moscow 83843

DEPARTMENT OF MATHEMATICS
L. E. Bobisud, Chairman

Teaching Assistantship (11) 4400–5000 9 680/yr. 20 Teaching

Applications due: 3/15/81
Faculty 14; Published 10
Bachelor's by inst. 1615
Bachelor's by dept. 8
Master's by dept. 1

PH.D. PROGRAM AT HAWAII

The University of Hawaii Mathematics Department has an excellent young faculty of 40 members. The Ph.D. program is relatively new, and the small number of graduate students makes for an extremely favorable student-faculty ratio. Very little time is spent here in shoveling snow, etc. Teaching Assistantships are available starting at $5016. For details write

H. S. BEAR, Graduate Chairman
Department of Mathematics
University of Hawaii at Manoa
Honolulu, HI 96822

AN EQUAL OPPORTUNITY EMPLOYER
ILLINOIS

Chicago State University, Chicago 60628
DEPARTMENT OF MATHEMATICS
Robert L. Bernhardt, Chairman

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Eastern Illinois University, Charleston 61920
DEPARTMENT OF MATHEMATICS
Alphonso J. DiPietro, Chairman

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Illinois Institute of Technology, Chicago 60616
DEPARTMENT OF COMPUTER SCIENCE
Anthony S. Wojcik, Chairman

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Illinois State University, Normal 61761
DEPARTMENT OF MATHEMATICS
Albert D. Otto, Chairman

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Northern Illinois University, DeKalb 60115
DIVISION OF COMPUTER SCIENCE
J. McCharen, Acting Director

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DEPARTMENT OF MATHEMATICAL SCIENCES
D. B. McAlister, Chairman

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Northwestern University, Evanston 60201
DEPARTMENT OF MATHEMATICS
Meyer Dwass, Chairman

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<td>Bachelor's by dept. 24</td>
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<td>Master's by dept. 3</td>
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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) 4104–4482 9 **
Research Assistantship (1) 4104–4482 9 **
Teaching Assistantship (6) 5016–5478 11 **

*Late applications accepted.
**Fees of $95–$140 per semester.

University of Illinois at Urbana-Champaign, Urbana 61801
DEPARTMENT OF MATHEMATICS
Heini Halberstam, Head
Teaching Fellowship (12) 4000–7384 12 0-4c Teaching
Teaching Assistantship (150) 5036–5400 9 130 6c Teaching

*Late applications accepted.

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 this 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, and a Data General Eclipse mini-computer. In addition the Department maintains a computer lab which includes several TRS-80, APPLE, PET, IMSAI and INTECOLOR systems with disk, printers, plotter, 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 Department
Western Illinois University
Macomb, IL 61455
**INDIANA**

**Ball State University, Muncie 47306**

**DEPARTMENT OF MATHEMATICAL SCIENCES**

Applications due: 3/15/81

Faculty 43; Published 15

*For the academic year.*

Clinton P. Fuelling, Chairman

Fellowship (3)

Teaching Assistantship (15)

3210 9 66/qtr. 4

**Teaching,**

**Research.***

**DEPARTMENT OF COMPUTER SCIENCE**

Applications due: 3/15/81

Faculty 16; Published 13

Paul W. Purdom, Chairman

Fellowship (3)

Teaching Assistantship (30)

5000 9 118.80 20 Teaching

Research Assistantship (5)

6000 9 118.80 20 Research

**For the academic year.**

Joe Stampfli, Chairman

Fellowship (2)

Teaching Assistantship (110)

4700–6000 9 40/hr.

Research Assistantship (1)

4700–5200 9 15–20 Research

Assistantship (44)

750–1200 2 15–20 Teaching, assisting

*The average stipend is expected to be $5,150.

**Accompanied by a full fee remission which exempts the student from paying all fees except $85 per semester for general expenses (Health Center, etc.).

***Accompanied by a full fee remission which exempts the student from paying all fees except for $36.50 for general expenses (Health Center, etc.).

**Indiana University—Purdue University at Indianapolis 46205**

**DEPARTMENT OF MATHEMATICAL SCIENCES**

Applications due: 5/1/81

Faculty 27; Published 23

Michael Gemignani, Chairman

Teaching Assistantship (4)

Research Assistantship (4)

4000–4500 9 20 Teaching

4000–4500 9 20 Research

**Purdue University, West Lafayette 47907**

**DEPARTMENT OF COMPUTER SCIENCES**

Applications due: 2/1/81

Faculty 23; Published 20

Peter J. Bonning, Head

Fellowship**

4800 12 ***

Teaching Assistantship (35)

Research Assistantship (5)

4500–4700 10 *** 20

4500–4700 10 *** 20

Minority Fellowships**

4800–4800 12

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

**Number not known at this time.

**$88 per semester and $44 for summer.

**DEPARTMENT OF INDUSTRIAL ENGINEERING**

Applications due: 3/15/81

Faculty 26; Published 23

W. L. Meier, Jr., Head

Fellowship (5)

Teaching Fellowship (3)

Teaching Assistantship (11)

Research Assistantship (22)

4200–7260 12 220 20–30 Teaching

4500–8925 9 176 20–30 Grading

4500–7875 9 176 20–30 Research

4500–9000 9 176 20–30 Research

**DEPARTMENT OF MATHEMATICS**

Applications due:*

Faculty 68; Published 50

M. S. Baouendi, Chairman

Fellowship (4)

Teaching Assistantship (120)

Research Assistantship (3)

Black Fellowship (2)

4800 12 88/sem.

4700–4900 9 88/sem. 6

4600 12 88/sem.

4800 12 88/sem.

**Assistantship: 3/15/81; Fellowship: 2/1/81.

**DEPARTMENT OF STATISTICS**

Applications due: 5/1/81

Faculty 19; Published 15

Shanti S. Gupta, Head

Fellowship (1)

Teaching Assistantship (32)

Research Assistantship (9)

Scholarship (4)

4200 12 88/sem.

4500–5100 10 88/sem. 6

4500–5100 10 88/sem. 18

Consulting

Ph.D. (77/80) S 4. Total: 4

Bachelor's by inst. 2283

Bachelor's by dept. 43

Master's by dept. 27

Ph.D. (77/80) ANT 1, AFA 3,

GT 2, L 1, P 3, S 2, AM 2. Total: 14

Bachelor's by inst. 3468

Bachelor's by dept. 38

Ph.D. (77/80) ANT 1, AFA 3,

GT 2, L 1, P 3, S 2, AM 2. Total: 16

Bachelor's by inst. 4939

Bachelor's by dept. 96

Master's by dept. 66

Ph.D. (77/80) OR 23, Other 9.

Total: 32

Bachelor's by inst. 4939

Bachelor's by dept. 68

Master's by dept. 15

Ph.D. (77/80) ANT 1, AFA 6,

AM 8. Total: 15

Bachelor's by inst. 4939

Bachelor's by dept. 130

Master's by dept. 26

Ph.D. (77/80) OR 23, Other 9.

Total: 32

Bachelor's by inst. 4939

Bachelor's by dept. 68

Master's by dept. 15
University of Notre Dame, Notre Dame 46556
DEPARTMENT OF MATHEMATICS
Warren J. Wong, Chairman
Teaching Assistantship (35) 4400-5200 9 0-4C Teaching

Iowa State University, Ames 50011
DEPARTMENT OF COMPUTER SCIENCE
Robert M. Stewart, Chairman
Teaching Assistantship (22) 4600-6000 9 700 3C Teaching
Research Assistantship (8) 5400-6000 12 700
DEPARTMENT OF MATHEMATICS
W. E. Barnes, Head
Teaching Assistantship (32) 4815*-5000* 9 159/qtr.* 5-6C Teaching
Scholarship (10) 159/qtr.* 12

University of Iowa, Iowa City 52242
DEPARTMENT OF COMPUTER SCIENCE
Ted Sjoerdsma, Chairman
Teaching Assistantship (12) 6400 9 94-475 20 Teaching
Research Assistantship (6) 6400 9 94-475 20 Research
Teaching-Research Fellowship (1) 6400 9 20 Teaching, research

DEPARTMENT OF MATHEMATICS
Robert H. Oehmke, Chairman
Teaching Assistantship (47) 5500-6300 9 * 20 Teaching
Teaching-Research Fellowship (3) 4600-6300 *

Applications due: 2/15/81 Faculty 36; Published 23 Bachelor's by dept. 13
Applications due: 3/1/81 Faculty 13; Published 10 Bachelor's by dept. 16
Applications due: 3/1/81 Faculty 66; Published 46 Bachelor's by dept. 17
Applications due: 3/31/81 Faculty 33; Published 31 Bachelor's by dept. 25
Applications due: 3/1/81 Faculty 34 Bachelor's by dept. 26
Applications due: 3/1/81 Faculty 34 Bachelor's by dept. 25

*Current rates; some increase is expected. *Half of in-state tuition is reimbursed for graduate assistants.
**Premium for Academic Excellence, an award offered by the Graduate College, which is based on prior scholastic achievement.

THE UNIVERSITY OF NOTRE DAME
GRADUATE STUDIES IN MATHEMATICS

The presence of active groups of research mathematicians in algebra, pure and applied analysis, differential geometry, topology and logic together with limited enrollment assures students of the opportunity to develop into an educated and creative mathematician.

The department has its own modern building which includes a comprehensive research library and computing facility. All graduate students have comfortable offices in the building (two to an office). No teaching duties are required during the first year of studies.

For details write to: PROFESSOR WARREN J. WONG, Chairman
Department of Mathematics
University of Notre Dame
Notre Dame, IN 46556
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**Notes:**
- *Joint undergraduate program with Mathematics.
- *Fellowship: 2/15/81; Assistantship: 3/1/81 for first consideration.
- All graduate students are eligible for these, including teaching assistants.
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<td>David E. Gibbs, Chairman</td>
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<td>University of Kentucky, Lexington 40506</td>
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<td>Louisiana State University, Baton Rouge 70803</td>
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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 will pay between $5400 and $5850 in 1981–82, are available. Strong applicants will be considered for teaching fellowships, of which several are available at $6400–$6850.

For information write to:

Professor Steven H. Weintraub, Director of Graduate Studies, Department of Mathematics
Louisiana State University, Baton Rouge, Louisiana 70803.

SYSTEMS SCIENCE

Louisiana State University, Baton Rouge, Louisiana 70803, offers the degree of Masters of Science in System Science. In this interdisciplinary program the student selects course work from the areas of operations research, cybernetics, foundations of system science, computer science, data structures and management, system simulation and numerical analysis or statistics and then applies this work in a field of specialization. Some assistantships are available as are part-time jobs. For further information contact:

Walter Rudd, Chairman
Department of Computer Science
Tulane University, New Orleans 70118

DEPARTMENT OF MATHEMATICS
Edward D. Conway, Chairman

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University of Southwestern Louisiana, Lafayette 70504

DEPARTMENT OF MATHEMATICS AND STATISTICS
Duane Blumberg, Chairman

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<td>Ph.D. (77/80) GT 1, S 2, AM 1. Total: 4</td>
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TULANE UNIVERSITY

FACULTY: ALGEBRA — Alfred H. Clifford (emeritus), John Dauns, Laszlo Fuchs, Pierre A. Grillet, William R. Nico

COMPUTER SCIENCE — Mark Benard

NUMERICAL COMPUTATION — Gary A. Sod, Michael E. Rose

PARTIAL DIFFERENTIAL EQUATIONS — J. Thomas Beale, Edward D. Conway, Jerome A. Goldstein, Steven I. Rosencrans

PROBABILITY AND STATISTICS — Arnold Levine, Carl Cheng, Robert Fortus

SEVERAL COMPLEX VARIABLES AND DIFFERENTIAL GEOMETRY — Frank T. Birtel, Morris Kalka, Frank D. Quigley, Albert L. Vitter, Pit-Mann Wong

TOPOLOGY — Ronald A. Fintushel, Ronald J. Knill, Terry C. Lawson, James T. Rogers

TOPOLOGICAL ALGEBRA — Maurice J. Dupré, Karl H. Hofmann, John R. Liukkonen, Michael W. Mislove.

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, New Orleans, Louisiana 70118.)

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 "Graduate Study in Mathematics" at Tulane.

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- MS PhD DEGREES
- ACTIVE RESEARCH FACULTY
- CLOSE STUDENT-FACULTY CONTACT
- SUPERIOR COMPUTER FACILITIES
- INTERDISCIPLINARY PROGRAMS
- FINANCIAL SUPPORT
- ALGEBRA
- TOPOLOGY
- APPLIED MATHEMATICS
- STATISTICS
- PLEASANT SURROUNDINGS

Contact:
Dr. Victor P. Schneider
Department of Mathematics and Statistics
The University of Southwestern Louisiana
Lafayette, Louisiana 70504
Ph. (318) 264-6702
MAINE

University of Maine at Orono 04469
DEPARTMENT OF MATHEMATICS
Gary Haggard, Chairman

Teaching Assistantship (6) 3800 9 20 Recitation section, Lab supervision

MARYLAND

Johns Hopkins University, Baltimore 21212
DEPARTMENT OF MATHEMATICAL SCIENCES
William H. Huggins, Chairman

Teaching Fellowship (20) Varies 9 5045 6-8 Teaching

University of Maryland, Baltimore County, Baltimore 21228
DEPARTMENT OF MATHEMATICS
Yen-Mow Lynn, Chairman

Teaching Fellowship (10) 4800—5900 9 20 Grading, teaching
Research Assistantship (2) 4800—5900 9 20 Research

UNIVERSITY OF MARYLAND BALTIMORE COUNTY
M.S. and Ph.D. in Applied Mathematics


Teaching Assistantships: $4800—5900 with remission of fees.
Apply to:
Dr. N. P. Bhatia, Director
Graduate Program in Applied Mathematics
Department of Mathematics
University of Maryland Baltimore County
Baltimore, Maryland 21228

UNIVERSITY OF MARYLAND, COLLEGE PARK
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The Interdisciplinary Applied Mathematics Program is sponsored by thirteen departments including Mathematical Statistics, Physics and Astronomy, Computer Science, the Engineering Departments, Meteorology and the College of Business and Management. The program involves eighty-seven faculty members, and at present about one hundred and ten graduate students are enrolled. The M.A. and Ph.D. degrees are offered. Courses of study are flexible and combine Mathematics with areas of applications such as Mathematical Physics, Operations Research, Engineering and Computer Software. There is special emphasis on Numerical Analysis. Teaching assistantships are available through the Department of Mathematics; some research assistantships are available through the participating departments.

For Information Write: Director, Applied Mathematics Program
University of Maryland
College Park, Maryland 20742
University of Maryland, College Park 20742

DEPARTMENT OF MATHEMATICS
William E. Kirwan, Chairman

Teaching Assistantship (105) 4800–5900* 10 ** 20 ***
Research Assistantship (3) 5200–5900* 12 ** 6–10

*Current stipend amounts.
**Resident: $80 per credit hour; nonresident: $120 per credit hour. 10 hours remitted.
***6 hours teaching.

Applications due: 3/1/81
Faculty 90; Published 60
Bachelor's by inst. 5400
Bachelor's by dept. 42
Master's by dept. 22
Ph.D. (77/80) ANT 4, AFA 9,
GT 5, L 1, S 2, CS 1, AM 7.
Total: 29

DEGREES AWARDED
Academic year 1979-1980

M ASSACHUSETTS

Boston College, Chestnut Hill 02167

DEPARTMENT OF MATHEMATICS
P. R. Thie, Chairman

Teaching Fellowship (10) 3500 9 6 Teaching
Scholarship (1) 9

Applications due: 3/15/81
Faculty 22; Published 30
Bachelor's by inst. 2109
Bachelor's by dept. 38
Master's by dept. 4
Ph.D. (77/80) AFA 1, S 6,
CS 3, AM 2. Total: 12

Boston University, Boston 02215

DEPARTMENT OF MATHEMATICS
Dennis Berkey, Chairman

Fellowship (2) 4000 9
Teaching Fellowship (25) 4200 9 6 Teaching
Teaching Assistantship (3) 9 10

Applications due: 3/1/81
Faculty 35; Published 30
Bachelor's by inst. 2239
Bachelor's by dept. 33
Ph.D. (77/80) AFA 1, S 6,
ANT 4, GT 4. Total: 18

Brandeis University, Waltham 02154

DEPARTMENT OF MATHEMATICS
David Buchsbaum, Chairman

Fellowship (6) 4500–6000 9 *
Teaching Assistantship (20) 4500–5500 9 *
Research Assistantship (7) 4500–5500 9 *

Applications due: 3/1/81
Faculty 22; Published 16
Bachelor's by inst. 725
Bachelor's by dept. 25
Master's by dept. 3
Ph.D. (77/80) AFA 9, GT 4.
Total: 18

Clark University, Worcester 01610

DEPARTMENT OF MATHEMATICS
Ed Cline, Chairman

Teaching Assistantship (5) 3700 9 20 Teaching

Applications due: 3/1/81
Faculty 8; Published 4
Bachelor's by inst. 443
Bachelor's by dept. 9
Master's by dept. 1
Ph.D. (77/80) AFA 1, S 7.
Total: 3

Harvard University, Cambridge 02138

DEPARTMENT OF STATISTICS
Peter J. Huber, Chairman

Fellowship (3) 6200* 9
Teaching Fellowship (14) 2380–2820* 10 8 Teaching, grading
Research Assistantship (11) 4600 9 **

Applications due: 1/1/81
Faculty 6; Published 6
Bachelor's by inst. 1629
Bachelor's by dept. 2
Master's by dept. 3
Ph.D. (77/80) S 7. Total: 7

**64 hrs./month of directed research.

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.
Massachusetts Institute of Technology, Cambridge 02139

Department of Mathematics
Applications due: 1/15/81

- Fellowship (20): 3240–5400
- Research Assistantship (14): 10629

Fees: Tuition; Stipend paid by student

Service Required: Hours per week:
- Fellowship: 8
- Research Assistantship: 16

Degrees Awarded: Academic year 1979-1980
- Master’s by dept. 33
- Bachelor’s by dept. 33
- Bachelor’s by inst. 2600
- Master’s by dept. 16
- Ph.D. 7

Notes:
- *Scholarship.
- **Six hours teaching or sixteen hours grading papers.

Northeastern University, Boston 02115

Department of Mathematics
Applications due: 1/15/81

- Teaching Assistantship (30): 4000–4300

Fees: Tuition

Service Required: Hours per week:
- Teaching Assistantship: 3

Degrees Awarded: Academic year 1979-1980
- Bachelor’s by dept. 33
- Bachelor’s by inst. 1078
- Master’s by dept. 2
- Master’s by dept. 16
- Ph.D. 1

Notes:
- *An appropriate tuition scholarship is awarded with each teaching assistantship.

Tufts University, Medford 02155

Department of Mathematics
Applications due: 3/15/81

- Teaching Assistantship (8): 3900–4100

Fees: Tuition

Service Required: Hours per week:
- Teaching Assistantship: 3

Degrees Awarded: Academic year 1979-1980
- Bachelor’s by dept. 36
- Bachelor’s by inst. 1071
- Master’s by dept. 34
- Master’s by dept. 14
- Ph.D. 1

Notes:
- *An appropriate tuition scholarship is awarded with each teaching assistantship.

University of Lowell, Lowell 01854

Department of Mathematics
Applications due: 5/15/81

- Teaching Assistantship (7): 1850–3750

Fees: Tuition

Service Required: Hours per week:
- Teaching Assistantship: 6

Degrees Awarded: Academic year 1979-1980
- Bachelor’s by dept. 22
- Bachelor’s by inst. 3283
- Master’s by dept. 14
- Master’s by dept. 12
- Master’s by dept. 5

Notes:
- *Assistantship: open; Fellowship: 2/1/81.

University of Massachusetts, Amherst 01003

Department of Mathematics and Statistics
Applications due: *

- Fellowship (3): 4000
- Research Assistantship (3): 4200–4400
- N.S.F. (1): 4320

Fees: Tuition

Service Required: Hours per week:
- Fellowship: 12
- Research Assistantship: 20

Degrees Awarded: Academic year 1979-1980
- Bachelor’s by dept. 32
- Bachelor’s by inst. 3283
- Master’s by dept. 12
- Master’s by dept. 5

Notes:
- *Scholarship.

University of Massachusetts at Boston 02125

Department of Mathematical Sciences
Applications due: 4/15/81

- Teaching Assistantship (4): 3000

Fees: Tuition

Service Required: Hours per week:
- Teaching Assistantship: Waived

Degrees Awarded: Academic year 1979-1980
- Bachelor’s by dept. 12
- Bachelor’s by inst. 969
- Bachelor’s by dept. 3

Notes:
- *Scholarship.

Andrews University, Berrien Springs 49104

Department of Mathematical Sciences
Applications due: 3/15/81

- Teaching Assistantship (3): 3500–3700

Fees: Tuition

Service Required: Hours per week:
- Teaching Assistantship: 4

Degrees Awarded: Academic year 1979-1980
- Bachelor’s by dept. 2
- Bachelor’s by inst. 240
- Bachelor’s by dept. 3

Notes:
- *Scholarship.

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

University of Massachusetts at Amherst
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<td>University of Detroit, Detroit 48221</td>
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<td>Master's by dept. 27</td>
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**MICHIGAN STATE UNIVERSITY**

Graduate study in Mathematics and Applied Mathematics leading to the Master's and Ph.D. Degrees, as well as the Master of Arts for Teachers Degree.

The Department encourages applications from women and members of minorities.

For further information, contact

Director of Graduate Affairs – Department of Mathematics
Michigan State University, East Lansing, Michigan 48824

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MATHEMATICS

The Mathematics Department offers graduate programs leading to the M.A. and Ph.D. degrees. Master’s degrees are offered in mathematics, applied mathematics, and statistics. Doctoral students may specialize in a variety of areas, including combinatorics, algebra, classical and functional analysis, differential equations, geometry and topology, probability and statistics, and applied mathematics. The department presently includes forty-seven full-time faculty, and a favorable student/faculty ratio allows for individual attention.

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Direct inquiries to: B.J. Eisenstadt, Chairman
Department of Mathematics
Wayne State University
Detroit, Michigan 48202

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<td>Willard Miller, Jr., Head</td>
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<td>*Plus expected 7% increase for 1981—82.</td>
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<td>**$37 per quarter per credit plus $68 per quarter for fees.</td>
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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
117 Vincent Hall
206 Church Street S.E.
University of Minnesota
Minneapolis, Minnesota 55455

688
<table>
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<tr>
<th>TYPE OF ASSISTANCE</th>
<th>STIPEND paid to student dollars</th>
<th>FEES paid by student ($)</th>
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<th>DEGREES AWARDED Academic year</th>
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<td>Eldon L. Miller, Chairman</td>
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*Tuition remission of 6 hours per semester. Any additional hours $137.50 per semester hour.
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*Fees are currently $450 per semester.**

*A limited number of these are available through a university-wide program. The Mathematics Department has had a number of recipients. Application dates vary. Stipends range from $1,500 to $5,000 per academic year.

**Teaching and Research Assistants are usually .5 full-time equivalent but can be .25 or .75 full-time equivalent.

***One full-time equivalent.

**.5 full-time equivalent.

**Ph.D. (77/80) S 3. Total: 3

*Ph.D. (77/80) AFA 1, GT 2, AM 1. Total: 5

**Ph.D. (77/80) AFA 3, AM 2. Total: 5

**Ph.D. (77/80) AFA 1, S 3, AM 1. Total: 5

**Ph.D. (77/80) AFA 2, GT 2, AM 1. Total: 5

**Ph.D. (77/80) AFA 3, AM 2. Total: 5

**Ph.D. (77/80) AFA 1, S 3, AM 1. Total: 5

**Ph.D. (77/80) AFA 2, GT 2, AM 1. Total: 5

**Ph.D. (77/80) AFA 3, AM 2. Total: 5

**Ph.D. (77/80) AFA 2, GT 2, AM 1. Total: 5

**Ph.D. (77/80) AFA 1, S 3, AM 1. Total: 5

**Ph.D. (77/80) AFA 2, GT 2, AM 1. Total: 5
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<td>University of Nebraska, Omaha 68182</td>
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<td>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</td>
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<td>Charles Downey, Chairman</td>
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</table>

Ph.D. in Mathematical Sciences at the UNIVERSITY OF MONTANA

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

691
University of Nevada, Las Vegas 89154
DEPARTMENT OF MATHEMATICAL SCIENCES
S. Verma, Chairman
Teaching Assistantship (6) 4600 9 7/hr 6 Teaching
*Fall 4/15/81; spring 11/1/81.

NEW HAMPSHIRE
Dartmouth College, Hanover 03755
DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE
Stephen J. Garland, Chairman
Fellowship (4) 3000–6500 9 6500
DEPARTMENT OF MATHEMATICS
Donald L. Kreider, Chairman
Fellowship (16) 5160 9-12 4-10 Teaching

University of New Hampshire, Durham 03824
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
M. Evans Munroe, Chairman
Fellowship (1) 4900–5200 12 100
Teaching Assistantship (12) 4200–4800 9 200
Scholarship (2) Tuition 9 200

NEW JERSEY
Fairleigh Dickinson University, Madison 07940
DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE
Peter Falley, Chairperson
Teaching Fellowship (2) 3600 9 6c Teaching

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 Mathematical Sciences, through an active faculty, offers graduate students both an unusual amount of personal attention and lively 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 Mathematical Sciences, University of Nevada, Las Vegas, Nevada 89154.

UNLV is an Equal Opportunity/Affirmative Action Employer

University of Nevada, Reno

Fed up with being just another face in a crowd? You should come to UNR for your M.S. (thesis or non-thesis options available). We have a small, congenial department with lots of personal interaction. The wide range of faculty interests includes algebra, analysis, functional analysis, topology, differential geometry, gravitation theory, computer science, probability, numerical analysis, combinatorics and foundations. Excellent computing facility is being regularly expanded and updated. This year’s stipends range from $4700 to $5300 and include tuition waivers. Ample opportunity for summer employment. Unparalleled recreation opportunities, including fantastic skiing. Write Assistantship, Department of Mathematics, University of Nevada, Reno, NV 89557. Applications due: 3/15/81 AA/EOE
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<th>University</th>
<th>Admission Year</th>
<th>Field of Study</th>
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<td>Fairleigh Dickinson University, Teaneck 07666</td>
<td>1981-1982</td>
<td>Type of assistance</td>
<td>Gilbert Steiner, Chairman</td>
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<td>Francis E. Masat, Chairman</td>
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<td>Glassboro State College, Glassboro 08028</td>
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<td>Rutgers University, New Brunswick 08903</td>
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**Trenton State College, Trenton 08625**
DEPARTMENT OF MATHEMATICAL SCIENCES
Edward J. Conjura, Chairman
Assistantship (2) 2500 9 15 Tutoring, proctoring

**Eastern New Mexico University, Portales 88130**
DEPARTMENT OF MATHEMATICS, COMPUTER SCIENCE AND STATISTICS
William G. Calton, Chairman
Teaching Assistantship (5) 4800 9 6

**New Mexico Highlands University, Las Vegas 87701**
DEPARTMENT OF SCIENCE AND MATHEMATICS
Jon A. Schlosser, Chairman
Teaching Assistantship (3) 2784–3760 9 454-1430 15 Grading, Help sessions

**New Mexico Institute of Mining and Technology, Socorro 8801**
DEPARTMENT OF COMPUTER SCIENCE
Thomas A. Nartker, Chairman
Teaching Assistantship (4) 4000–5000 9 271.50 20 Teaching
Research Assistantship (3) 3800–5000 9 271.50 20 Research
DEPARTMENT OF MATHEMATICS
Alan Sharples, Chairman
Teaching Assistantship (6) 4700–4900 9 Waived 5-6

**New Mexico State University, Las Cruces 88003**
DEPARTMENT OF MATHEMATICAL SCIENCES
Carol L. Walker, Chairman
Teaching Assistantship (24) 4810–7500 9 29/hr. 20

**University of New Mexico, Albuquerque 87131**
DEPARTMENT OF COMPUTER SCIENCE
Cleve Moler, Chairman
Teaching Assistantship (8) 4000–5000 9 20 Grading, teaching Lab maintenance, dept. research

**NEW MEXICO STATE UNIVERSITY**

- **Areas of Emphasis for M.S.**

- **Research Interests and Ph.D. Thesis Direction.**

- **Active Program of Colloquia and Research Conferences.**

- **Teaching Assistantships and Part-time Job Opportunities Available.**

Direct Inquiries to: Department of Mathematical Sciences New Mexico State University Las Cruces, NM 88003

694
DEPARTMENT OF MATHEMATICS AND STATISTICS
W. T. Kyner, Chairman
Faculty 39; Published 31
Teaching Assistantship (22) 4300-4600 9 Waived 5
Title IV H.E.W. Graduate and
Professional Fellowship (3)* 3900 9 **
*First year graduate students, minority.
**Paid by grant.

NEW YORK

Adelphi University, Garden City 11530
DEPARTMENT OF MATHEMATICS
AND COMPUTER SCIENCE
Applications due: 3/15/81
Donald Hammer, Chairman
Faculty 17; Published 7
Teaching Fellowship (1) 3800 9 20
Teaching Assistantship (10) 3000-3300 9 20
Full Scholarship (5) 9
Tutorship (2) 2000 9 20
Scholarship - 50% - 54 credits per year.

City University of New York, Brooklyn College 11210
DEPARTMENT OF COMPUTER
AND INFORMATION SCIENCE
Applications due: 3/15/81
F. S. Beckman, Chairman
Faculty 14; Published 10
Teaching Assistantship (6) 7098 9 6-8\$c
Adjunct Lecturer (6) 23/hr. 9 9\$c**
*New York residents $750 per semester; nonresidents $1,000 per semester.
**Maximum hours per week.

DOCTORAL STUDIES IN
MATHEMATICS, APPLIED MATHEMATICS,
AND COMPUTER SCIENCE
THE GRADUATE SCHOOL OF THE
CITY UNIVERSITY OF NEW YORK

The CUNY Ph.D. program in mathematics, in cooperation with the doctoral faculty in engineering and computer science, offers advanced study leading to the Ph.D. in several areas of pure and applied mathematics and computer science. Among the current fields of faculty interest are:

- Algebraic Topology
- Applied Analysis
- Automata
- Combinatorics
- Complexity Theory
- Computability
- Ordinary and Partial Differential Equations
- Differential Geometry
- Digital Signal Processing
- Dynamical Systems
- Fluid Dynamics
- Formal Languages
- Group Theory
- Lie Groups
- Logic
- Matroids
- Number Theory
- Optimization
- Real and Complex Analysis
- Riemann Surfaces

The mathematics Ph.D. program is located centrally in Manhattan at the Graduate Center, 33 West 42 Street.
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<tr>
<td>Department of Mathematical Sciences</td>
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<td>Thomas Jambois, Chairman</td>
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<tr>
<td>Department of Mathematics and Computer Science</td>
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<tr>
<td>Mark J. Ablowitz, Chairman</td>
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<td>Cornell University, Ithaca 14853</td>
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<td>Center for Applied Mathematics</td>
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<td>Lawrence E. Payne, Acting Director</td>
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<td>Teaching Assistantship (40)</td>
<td>3900–4100</td>
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<td>Research Assistantship (3)</td>
<td>3500</td>
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696
 TYPE OF ASSISTANCE
(number anticipated 1981-1982)  STIPEND paid to student dollars per year  FEES paid by student ($)  SERVICE REQUIRED type of service  DEGREES AWARDED Academic year

DEPARTMENT OF OPERATIONS RESEARCH
G. L. Nemhauser, Director
Fellowship (15)
Teaching Assistantship (15)
Research Assistantship (12)
Fordham University, Bronx 10458
DEPARTMENT OF MATHEMATICS
Peter M. Curran, Chairman
Graduate Assistantship (6)
New York University—Courant Institute of Mathematical Sciences, New York 10012
DEPARTMENT OF COMPUTER SCIENCE
Srinivasa Varadhan, Director, Courant Institute of Mathematical Sciences
Olof Widlund, Chairman, Department of Computer Science
DEPARTMENT OF MATHEMATICS
Jerome Berkowitz, Chairman, Department of Mathematics
Fellowship (5)
Teaching Assistantship (15)
Research Assistantship (25)
NASA Traineeship (5)

DEGREES AWARDED
Bachelor's by inst. 3012
Bachelor's by dept. 60
Master's by dept. 30
Ph.D. (77/80) OR 33. Total: 33
Bachelor's by inst. 1425
Bachelor's by dept. 11
Ph.D. (77/80) AFA 1, GT 1. Total: 2
Bachelor's by inst. 965
Bachelor's by dept. 45
Master's by dept. 20
Ph.D. (77/80) CS 13. Total: 13
Bachelor's by inst. 965
Bachelor's by dept. 38
Master's by dept. 14
Ph.D. (77/80) ANT 2, AFA 9, L 2, P 3, AM 17, Other 5. Total: 38

Clarkson University
Graduate School
Clarkson
Potsdam, New York 13676

Clarkson offers the M.S. and Ph.D. in Mathematics with individual attention by an active research faculty in an attractive northern New York location. A broad mathematical curriculum is offered with emphasis on applied mathematics and computer science.


A number of research and teaching assistantships, and tuition scholarships are available. Special assistantships up to $6,000 plus tuition are available for highly qualified applicants.

Applications received
by February 15, 1980
will be given early consideration.
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<th>TYPE OF ASSISTANCE</th>
<th>STIPEND</th>
<th>FEES</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
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<tr>
<td>(number anticipated 1981-1982)</td>
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<td>hours per week</td>
<td>type of service</td>
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<td><strong>Rensselaer Polytechnic Institute, Troy 12181</strong></td>
<td><strong>DEPARTMENT OF MATHEMATICS SCIENCES</strong></td>
<td>Applications due: 2/15/81</td>
<td>Faculty 31; Published 28</td>
<td>Bachelor's by inst. 991</td>
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<td>R. C. DiPrima, Chairman</td>
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<td>Bachelor's by dept. 70</td>
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<td>Fellowship (3) 5000—5500 9</td>
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<td>Teaching Assistantship (35) 4700—5500 9</td>
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<td>Research Assistantship (8) 4700—5500 9</td>
<td>200</td>
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<td><strong>State University College at Brockport 14420</strong></td>
<td><strong>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</strong></td>
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<td>Faculty 20; Published 9</td>
<td>Bachelor's by inst. 2200</td>
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<td>Theron D. Rockhill, Chairperson</td>
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<td>Bachelor's by dept. 90</td>
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<td><strong>State University College at Fredonia 14063</strong></td>
<td><strong>DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE</strong></td>
<td>Applications due: 4/15/81</td>
<td>Faculty 16; Published 5</td>
<td>Bachelor's by inst. 898</td>
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<td>Bachelor's by dept. 8</td>
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<td>Teaching Assistantship (1) 2600 9</td>
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<td>Master's by dept. 6</td>
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<td><strong>State University of New York at Albany 12222</strong></td>
<td><strong>DEPARTMENT OF MATHEMATICS AND STATISTICS</strong></td>
<td>Applications due: 3/1/81</td>
<td>Faculty 40; Published 37</td>
<td>Bachelor's by inst. 2000</td>
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<td>Edward Thomas, Chairman</td>
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<td>Bachelor's by dept. 54</td>
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<td>Fellowship (2) 3400—5000 9</td>
<td>3-4 or 10</td>
<td>Ph. (77/80) ANT 1, AFA 4. Total: 5</td>
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<td>Teaching Assistantship (31) 4400 9</td>
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<td>Teaching Assistantship (1) 4750 9</td>
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<td>Minority Fellowship (1) 4400 9</td>
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<td>Presidential Fellowship (2) 5000 9</td>
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<td><strong>State University of New York at Binghamton 13901</strong></td>
<td><strong>DEPARTMENT OF MATHEMATICAL SCIENCES</strong></td>
<td>Applications due: 3/1/81</td>
<td>Faculty 26; Published 16</td>
<td>Bachelor's by inst. 1501</td>
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<td>Shelemyahu Zacks, Chairman</td>
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<td>Teaching Fellowship (8) 3700—4200 9</td>
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<td>Teaching Assistantship (24) 3800—5100 9</td>
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<td>Teaching Assistantship (1) 6000 12</td>
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<td>Bachelor's by dept. 6</td>
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<tr>
<td><strong>State University of New York at Buffalo, Amherst 14226</strong></td>
<td><strong>DEPARTMENT OF COMPUTER SCIENCE</strong></td>
<td>Applications due: 2/28/81</td>
<td>Faculty 11; Published 11</td>
<td>Bachelor's by inst. 2938</td>
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<td>Gideon Frieder, Chairman</td>
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<td>Bachelor's by dept. 53</td>
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<tr>
<td>Fellowship (1) 4000 10</td>
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<td>Teaching Assistantship (2) 3800—5100 9</td>
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<td>Research Assistantship (8) 3800—5100 9</td>
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<td>*Tuition waived; fees $60.</td>
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<td><strong>DEPARTMENT OF STATISTICS</strong></td>
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<td>Peter Enis, Chairman</td>
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<td>Bachelor's by dept. 17</td>
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<td>Research Assistantship (1) 3500—5100 9</td>
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<td>Ph. (77/80) P 1. Total: 1</td>
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<td><strong>State University of New York at Buffalo 14214</strong></td>
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<td>Lewis Coburn, Chairman</td>
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<td>Bachelor's by dept. 28</td>
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<td>Ph. (77/80) ANT 4, AFA 5, GT 4, L 2, AM 3. Total: 18</td>
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<td>*Assistantship: 3/15/81; Fellowship: 1/15/81.</td>
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<td><strong>State University of New York at Stony Brook 11794</strong></td>
<td><strong>DEPARTMENT OF APPLIED MATHEMATICS AND STATISTICS</strong></td>
<td>Applications due: 4/1/81</td>
<td>Faculty 18; Published 16</td>
<td>Bachelor's by inst. 2200</td>
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<td>Alan Tucker, Chairman</td>
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<td>Bachelor's by dept. 68</td>
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<td>Fellowship (1) 5000 9</td>
<td>** to 20 Teaching, grading</td>
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<td>Teaching Assistantship (40) 3000—4500 9</td>
<td>to 20 Research</td>
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<td>Research Assistantship (15) 4000—6000 12 9</td>
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<td>*All tuition.</td>
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<td><strong>One-half to full tuition.</strong></td>
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<td>DEGREES AWARDED</td>
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<td>hours</td>
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<td>per week</td>
<td>of service</td>
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<td>Irwin Kra, Chairman</td>
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<td>2000-4500</td>
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<td>GT 6. Total: 17</td>
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</table>

*Assistantship: 3/1/81; Fellowship: 2/1/81 for first round of offers.

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 in one and several variables, functional and harmonic analysis, algebra and algebraic geometry, geometric topology, differential equations, probability, and statistics, particularly Bayesian inference, biostatistics, linear models and design, and theory of survey sampling.

Faculty and students are currently engaged in applications of mathematics and statistics to research in medicine, gerontology, ecology, economics, and the physical sciences at SUNY Albany and at Albany Medical College.

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)

MATHEMATICS

STATE UNIVERSITY OF NEW YORK AT BUFFALO

The Department of Mathematics expects to appoint at least one Assistant Professor for a two-year term beginning September 1, 1981. Salary will be competitive. Outstanding applicants in all fields of mathematics are encouraged to apply; priority will be given to applicants in algebraic or differential topology and applied mathematics including combinatorics. We seek applicants with high research potential and a strong commitment to teaching.

Applicants should send any supporting information and have four letters of recommendation sent to:

Dr. Zbigniew Zielesny — Search Committee Chairman — Department of Mathematics
SUNY/Buffalo — 106 Diefendorf Hall — Buffalo, New York 14214

The deadline for applications is January 15, 1981.

SUNY/Buffalo is an Equal Opportunity/Affirmative Action Employer. We are interested in identifying prospective minority and women candidates. No person in whatever relation with SUNY/Buffalo shall be subjected to discrimination on the basis of race, ethnic background, national origin, religion, color, age, sex, or condition of handicap.

MATHEMATICS

STATE UNIVERSITY OF NEW YORK AT BUFFALO

The Department of Mathematics expects to award a George William Hill/Emmy Noether Research Instructorship for 1981-82. Applicants should be recent or prospective Ph.D.'s whose degrees will be completed by September 1, 1981, appointment being for 2 years. The twelve-month stipend, beginning September 1981, is $19,000 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 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. Zbigniew Zielesny, Chairman, Search Committee, Department of Mathematics, SUNY/Buffalo, 106 Diefendorf Hall, Buffalo, New York 14214.

The deadline for applications is January 15, 1981.

SUNY at Buffalo is an Equal Opportunity/Affirmative Action Employer. We are interested in identifying prospective minority and women candidates. No person in whatever relation with SUNY/Buffalo shall be subjected to discrimination on the basis of race, ethnic background, national origin, religion, color, age, sex, or condition of handicap.
<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
<th>STIPEND (number anticipated paid to student dollars 1981-1982)</th>
<th>FEES (paid by student $)</th>
<th>SERVICE REQUIRED hours per week</th>
<th>DEGREES AWARDED Academic year</th>
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<td>Syracuse University, Syracuse 13210</td>
<td><strong>DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE</strong></td>
<td>Warren Semon, Dean</td>
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<td>Teaching Assistantship (6) 5250-6000 9 583</td>
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<td>Teaching Assistantship (25) 4800-6000 8.5-10</td>
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<td>Appalachian State University, Boone 28608</td>
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<td>Duke University, Durham 27706</td>
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<td>Scholarship (3) 3000 9</td>
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<td>Seth Warner, Chairman</td>
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<td>Applications due: 3/15/81 Faculty 33; Published 15</td>
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<td>Robert C. Shock, Chairman</td>
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<td>Computer &amp; Office Inst. Research (4) 2950 9 * 15 **</td>
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<td><strong>GRADUATE PROGRAM IN OPERATIONS RESEARCH</strong></td>
<td>Applications due: 2/1/81 Faculty 6; Published 6</td>
<td>Bachelor's by inst. 2473</td>
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<td>Salah E. Elmaghraby, Director</td>
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<td><strong>DEPARTMENT OF STATISTICS</strong></td>
<td>Applications due: 3/1/81 Faculty 36; Published 29</td>
<td>Bachelor's by inst. 2473</td>
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<td>D. D. Mason, Head</td>
<td>Fellowship (2) 6000 12</td>
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<td>Bachelor's by dept. 5</td>
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<tr>
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<td></td>
<td>Teaching Assistantship (12) 4500-5400 9 * 0-20 Teaching</td>
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<td>Master's by dept. 15</td>
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<tr>
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<td>Research Assistantship (9) 5000-6100 12 * 0-20 Research</td>
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<td>Ph.D. (77/80) S 12, Other 1. Total: 13</td>
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<tr>
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<td>*See catalog.</td>
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<tr>
<td></td>
<td><strong>University of North Carolina, Chapel Hill 27514</strong></td>
<td><strong>DEPARTMENT OF BIOSTATISTICS</strong></td>
<td>Applications due: 3/15/81 Faculty 34; Published 32</td>
<td>Bachelor's by inst. 3064</td>
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<td>James E. Grizzle, Head</td>
<td>Fellowship (37) 5040 12</td>
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<td>Bachelor's by dept. 15</td>
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<td>Research Assistantship (20) 6730-8582 12</td>
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*All fellowships are for continuing students.
<table>
<thead>
<tr>
<th>Type of Assistance</th>
<th>Stipend</th>
<th>Fees</th>
<th>Service Required</th>
<th>Degrees Awarded</th>
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<tr>
<td><strong>DEPARTMENT OF COMPUTER SCIENCE</strong></td>
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<tr>
<td>Frederick P. Brooks, Jr., Chairman</td>
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<tr>
<td>Fellowship (4)</td>
<td>5300–10000 9-12</td>
<td>596</td>
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<td>Teaching Assistantship (20)</td>
<td>5300–5500 9</td>
<td>596</td>
<td>20 Grading,</td>
<td>Master's by dept. 18</td>
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<tr>
<td><strong>DEPARTMENT OF MATHEMATICS</strong></td>
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<tr>
<td>William W. Smith, Chairman</td>
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</tr>
<tr>
<td>Fellowship (2)*</td>
<td>3800 9</td>
<td>801/yr.</td>
<td>Research</td>
<td>Bachelor's by inst. 3064</td>
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<td>Teaching Fellowship (2)*</td>
<td>5400–6100 9</td>
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<td>Teaching Assistantship (31)</td>
<td>4300–6100 9</td>
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<td>Ph.D. (77/80) ANT 2, AFA 3, GT 3, Other 2. Total: 10</td>
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<tr>
<td>Research Assistantship (1)*</td>
<td>3800 9</td>
<td>801/yr.</td>
<td>3 Research</td>
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<tr>
<td>*Amount is usually supplemented with partial teaching assistantship.</td>
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<tr>
<td><strong>University of North Carolina at Charlotte 28223</strong></td>
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<td></td>
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</tr>
<tr>
<td>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.</td>
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<tr>
<td><strong>University of North Carolina at Greensboro 27412</strong></td>
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</tr>
<tr>
<td>Teaching Assistantship (3)</td>
<td>4000 9</td>
<td>572/sem.</td>
<td>6 Teaching</td>
<td>Bachelor's by inst. 1300</td>
</tr>
<tr>
<td>*For 9 hours or more: in-state $280, out-of-state $1146.</td>
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<td>Master's by dept. 34</td>
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<tr>
<td><strong>University of North Carolina at Chapel Hill</strong></td>
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<td></td>
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</tr>
<tr>
<td>Department 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.</td>
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<tr>
<td><strong>DEPARTMENT OF MATHEMATICS</strong></td>
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</tr>
<tr>
<td>Walter L. Smith, Chairman</td>
<td></td>
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<tr>
<td>Fellowship (4)</td>
<td>3800–4000 9</td>
<td>572/sem.</td>
<td>0-5</td>
<td>Bachelor's by inst. 3064</td>
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<td>Teaching Assistantship (14)</td>
<td>4000–4200 9</td>
<td>572/sem.</td>
<td>5-10</td>
<td>Master's by dept. 9</td>
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<tr>
<td>Research Assistantship (4)</td>
<td>4000–4600 9</td>
<td>572/sem.</td>
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<td>Ph.D. (77/80) OR 3. Total: 3</td>
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<td><strong>University of North Carolina at Chapel Hill</strong></td>
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<tr>
<td>University 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.</td>
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<tr>
<td><strong>University of North Carolina at Chapel Hill</strong></td>
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<tr>
<td>Fellowship (2-4)</td>
<td>5450 9</td>
<td>3600</td>
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<td>Bachelor's by inst. 644</td>
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<tr>
<td>Teaching Assistantship (2-4)</td>
<td>7600–7800 9</td>
<td>3600</td>
<td>12</td>
<td>Bachelor's by dept. 49</td>
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<td>Scholarship (4)</td>
<td>3600 9</td>
<td>3600</td>
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<td>Master's by dept. 5</td>
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<tr>
<td><strong>Western Carolina University, Cullowhee 28723</strong></td>
<td></td>
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<tr>
<td>Charles J. Martin, Head</td>
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<td>Bachelor's by inst. 610</td>
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<tr>
<td>Teaching Assistantship (6)</td>
<td>3200 9</td>
<td>3-4C Teaching</td>
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<td>Bachelor's by dept. 5</td>
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<tr>
<td>Tutoring Assistantship (2)</td>
<td>3400 12</td>
<td>20 Tutoring</td>
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<tr>
<td>*In-state: $155 per semester; out-of-state: $1024 per semester. Some tuition waivers.</td>
<td></td>
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</tbody>
</table>

**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.
<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
<th>STIPEND (paid to student dollars)</th>
<th>FEES (paid by student $)</th>
<th>SERVICE REQUIRED (hours required per week)</th>
<th>DEGREES AWARDED (1979-1980)</th>
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<tr>
<td>North Dakota State University, Fargo 58105</td>
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<td>Bachelor's by dept. 34, Master's by dept. 15</td>
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<tr>
<td>Department of Mathematical Sciences</td>
<td>Faculty 23; Published 15</td>
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<td>Teaching Assistantship (14)</td>
<td>3600-4500 9 5-9 Waived</td>
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<td>Internship (17)</td>
<td>400/mo.- 9-12 Waived 1200/mo.</td>
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<td>University of North Dakota, Grand Forks 58201</td>
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<td>Bachelor's by dept. 7, Master's by dept. 2</td>
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<td>Department of Mathematics</td>
<td>Faculty 14; Published 3</td>
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<td>Teaching Assistantship (3-5)</td>
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<td>Ohio</td>
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<td>Bowling Green State University, Bowling Green 43403</td>
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<td>Bachelor's by inst. 2676, Bachelor's by dept. 29, Master's by dept. 9</td>
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<td>Department of Mathematics and Statistics</td>
<td>Applications due: 3/15/81</td>
<td>Faculty 36; Published 25</td>
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<tr>
<td>W. L. Terwilliger, Chairman</td>
<td>W. L. Terwilliger, Chairman</td>
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<tr>
<td>Fellowship (4)</td>
<td>3000 12 87/qtr.</td>
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<tr>
<td>Teaching Fellowship (12)</td>
<td>4700-5100 9 87/qtr. 20 Teaching</td>
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<td>Ph.D. (77/80) ANT 4, S 1.</td>
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<td>Teaching Assistantship (18)</td>
<td>4500 9 87/qtr. 20 Teaching</td>
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<td>Case Western Reserve University, Cleveland 44106</td>
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<td>Bachelor's by inst. 748, Bachelor's by dept. 24, Master's by dept. 3</td>
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<td>Department of Mathematics and Statistics</td>
<td>Applications due: 3/15/81</td>
<td>Faculty 25; Published 22</td>
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<tr>
<td>Gail S. Young, Chairman</td>
<td>Gail S. Young, Chairman</td>
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<tr>
<td>Teaching Fellowship (6)</td>
<td>3600-4400* 9 3-4 Teaching</td>
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<td>Research Assistantship (2)</td>
<td>3600-4400* 9 15 Research</td>
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<td>Cleveland State University, Cleveland 44115</td>
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<td>Bachelor's by inst. 1400, Bachelor's by dept. 10, Master's by dept. 2</td>
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<td>Department of Mathematics</td>
<td>Faculty 27; Published 16</td>
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<td>Thomas W. Hungerford, Chairman</td>
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<tr>
<td>Teaching Assistantship (2)</td>
<td>1250 9 20 Grading, tutoring</td>
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<tr>
<td>John Carroll University, Cleveland 44118</td>
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<td>Bachelor's by inst. 261, Bachelor's by dept. 7, Master's by dept. 2</td>
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<td>Department of Mathematics</td>
<td>Faculty 9; Published 3</td>
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<tr>
<td>R. J. Koessler, Chairman</td>
<td>R. J. Koessler, Chairman</td>
<td></td>
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<tr>
<td>Teaching Assistantship (5)</td>
<td>3200 9 20 **</td>
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<tr>
<td>* Late applications accepted. **Grading, tutoring, and teaching if desired.</td>
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<tr>
<td>Kent State University, Kent 44242</td>
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<td>Bachelor's by inst. 2751, Bachelor's by dept. 32, Master's by dept. 2</td>
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<td>Department of Mathematics</td>
<td>Faculty 29; Published 19</td>
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<tr>
<td>Olaf P. Stackelberg, Chairman</td>
<td>Olaf P. Stackelberg, Chairman</td>
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<tr>
<td>Fellowship (1)*</td>
<td>4000-5500 9 300</td>
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<td>Ph.D. (77/80) ANT 5, AFA 5, GT 1, P 1. Total:12</td>
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<td>4200-5500 9 300</td>
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<td>Teaching Assistantship (18)*</td>
<td>4500-5500 9 300</td>
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<tr>
<td>Research Assistantship (2)</td>
<td>4600-5500 9-12 300 Varies</td>
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<td>* Summer support virtually certain for students in good standing.</td>
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<td>Miami University, Oxford 45056</td>
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<td>Bachelor's by inst. 3008, Bachelor's by dept. 60, Master's by dept. 11</td>
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<tr>
<td>Department of Mathematics and Statistics</td>
<td>Applications due: 3/15/81</td>
<td>Faculty 35; Published 20</td>
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<tr>
<td>S. E. Bohn, Chairman</td>
<td>S. E. Bohn, Chairman</td>
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<td>Teaching Assistantship (26)</td>
<td>4300 9 18 Teaching</td>
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TYPE OF ASSISTANCE  (number anticipated 1981-1982)  STIPEND  paid to student  dollars  months  FEES  paid by student ($)  SERVICE REQUIRED  hours per week  type of service  DEGREES AWARDED  Academic year 1979-1980

Ohio State University, Columbus 43210
DEPARTMENT OF MATHEMATICS
Dijen Ray-Chaudhuri, Chairman

<table>
<thead>
<tr>
<th>Fellowship (20)</th>
<th>5700--7200</th>
<th>12</th>
<th>Applications due: 2/1/81</th>
<th>Bachelor's by inst. 6496</th>
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<td>4545--5985</td>
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<td>4-6C</td>
<td>Ph.D. (77/80) ANT 6, AFA 2, GT 5, AM 1, Other 9. Total: 23</td>
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<td>Research Assistance (3-5)</td>
<td>6060--7200</td>
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<td>Summer Fellowship (70)</td>
<td>1200</td>
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DEPARTMENT OF STATISTICS
J. S. Rustagi, Chairman

<table>
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<th>Fellowship (4)</th>
<th>6000</th>
<th>9-12</th>
<th>Applications due: 3/15/81 or later</th>
<th>Bachelor's by inst. 6496</th>
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<tbody>
<tr>
<td>Teaching Assistance (35)</td>
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<td>20 Teaching, grading</td>
<td>Ph.D. (77/80) 5 A. Total: 4</td>
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<tr>
<td>Research Assistance (2)</td>
<td>4500--6000</td>
<td>9</td>
<td>20 Research</td>
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Ohio University, Athens 45701
DEPARTMENT OF MATHEMATICS
D. O. Norris, Chairman

<table>
<thead>
<tr>
<th>Teaching Assistance (25)</th>
<th>4000</th>
<th>9</th>
<th>85</th>
<th>15 Teaching</th>
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<tbody>
<tr>
<td>Research Assistance (1)</td>
<td>4000--5000</td>
<td>9</td>
<td>85</td>
<td>15 Research</td>
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University of Akron, Akron 44325
DEPARTMENT OF MATHEMATICAL SCIENCES
W. H. Beyer, Head

| Teaching Assistance (25) | 3300--3900 | 9 | 20 |

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**FELLOWSHIPS**
$475 to $600 per month for 12 months, plus tuition and fees
Application Deadline FEBRUARY 1, 1981

**ASSISTANTSHIPS**
$505 to $665/mo, tuition and fees, plus a Head Start Summer Fellowship
Application Deadline AUGUST 1, 1981

**The Ohio State University**
Department of Mathematics
231 West 18th Avenue
Columbus, Ohio 43210

A 1981 Summer Quarter Head Start Fellowship of $1200 plus tuition should be available for every math graduate student who is to become a new Teaching Assistant at OSU in 1981.

Each T. A. assists with only one math course each quarter at the calculus or precalculus level, averaging 5 class hours per week.

A number of University Fellowships and Special Minority fellowships are available to new students each year. All Ph.D. students at OSU are eligible to compete for Ph.D. dissertation year Fellowships near the end of their studies.

The OSU Mathematics Department offers the Ph.D. degree in many fields of study. Six to ten students complete their Ph.D. degree in theoretical mathematics each year.

Also, OSU has a number of M.S. degree programs involving theoretical, applied and/or interdisciplinary mathematics. One program combines Math with Computer and Information Science for two M.S. degrees. Another program involves Actuarial Science.

A New M.A. program designed primarily for high school teachers should be available by 1981.

**PLEASE CONTACT THE MATHEMATICS DEPARTMENT CHAIRMAN IF YOU WISH FURTHER INFORMATION**
TYPE OF ASSISTANCE  
STIPEND  
FEES  
SERVICE REQUIRED  
DEGREES AWARDED  

(1981-1982)  
paid to student dollars months  
paid by student ($)  
hours type of service  

University of Cincinnati, Cincinnati 45221  
DEPARTMENT OF MATHEMATICAL SCIENCES  
Herbert Halpern, Head  
Fellowship (1-3)  
5000*  
9  
Teaching Assistantship (32)  
4100—4400*  
12  
Scholarship (6)  
Full tuition  
72/qtr.  
Applications due: 3/15/81  
Faculty 37  
Bachelor’s by dept. 35  
Master’s by dept. 13  
Ph.D. (77/80) ANT 2, S 3, AM 3, Other 1. Total: 9  
*As of 1980-1981, could be increased.  

University of Dayton, Dayton 45469  
DEPARTMENT OF MATHEMATICS  
John McCloskey, Chairman  
Teaching Assistantship (5)  
4000—4200  
6c  
Research Assistantship (3)  
4000—4400  
20  
Applications due: 3/30/81  
Faculty 12; Published 4  
Bachelor’s by inst. 1385  
Bachelor’s by dept. 14  
Master’s by dept. 2  

University of Toledo, Toledo 43606  
DEPARTMENT OF MATHEMATICS  
Harvey E. Wolff, Chairman  
Teaching Assistantship (16)  
3600—4200  
63  
4-6c Teaching  
Applications due: Open  
Faculty 25; Published 13  
Bachelor’s by inst. 1372  
Bachelor’s by dept. 11  
Ph.D. (77/80) AFA 1, AM 1. Total: 2  

Wright State University, Dayton 45435  
DEPARTMENT OF COMPUTER SCIENCE  
Larry A. Crum, Chairman  
Teaching Assistantship (12)  
4100  
7/cr. hr.  
20  
DEPARTMENT OF MATHEMATICS  
Edgar A. Rutter, Chairman  
Teaching Assistantship (6)  
4000—4100  
7/cr. hr.  
16 **  
*Late applications accepted.  
**Teaching and/or tutoring in supplemental instruction program.  
Applications due: Open  
Faculty 19; Published 13  
Bachelor’s by inst. 1180  
Bachelor’s by dept. 40  
Master’s by dept. 10  

Youngstown State University, Youngstown 44555  
DEPARTMENT OF MATHEMATICAL AND COMPUTER SCIENCES  
Dean R. Brown, Chairman  
Teaching Assistantship (3)  
3750  
5c  
Scholarship (No quota)  
9  
Applications due: Open  
Faculty 26; Published 10  
Bachelor’s by inst. 1369  
Bachelor’s by dept. 29  
Master’s by dept. 3  

Oklahoma State University, Stillwater 74078  
DEPARTMENT OF MATHEMATICS  
Dennis Bertholf, Acting Chairman  
Teaching Assistantship (51)  
4185—4725  
22.50/cr. hr.  
5-6 Teaching  
Applications due: Open  
Faculty 34; Published 20  
Bachelor’s by inst. 3014  
Bachelor’s by dept. 16  
Master’s by dept. 7  
Ph.D. (77/80) ANT 2, AFA 4, GT 4, P 1, CS 1, OR 1, AM 2, ME 1, Other 2. Total: 18  

OKLAHOMA  

UNIVERSITY OF CINCINNATI  
GRADUATE STUDIES LEADING TO M.S., M.A.T., AND PH.D DEGREES  
The Department of Mathematical Sciences offers a wide variety of graduate courses in pure and applied mathematics, statistics, and computer science. With 35 faculty members, 40 graduate students, and a separate mathematics library on the same floor as all the offices, the Department provides an intimate environment for learning.  
The M.S. degree offers the student the flexibility of combining mathematics, statistics, and computer science in a single degree.  
Ph.D.’s have recently been awarded in algebra, complex analysis, differential equations, functional analysis, numerical analysis, and statistics.  
For information, write to:  
Professor James A. Deddens, Department of Mathematical Sciences, University of Cincinnati, Cincinnati, OH 45221.
### University of Oklahoma, Norman 73019

**DEPARTMENT OF MATHEMATICS**  
Morris L. Marx, Chairman  
Teaching Assistantship (35) 4500–5200 9 21.75/hr. 6 Teaching

**TYPE OF ASSISTANCE**  
Applications due: Open  
Faculty 35; Published 25  
Bachelor’s by inst. 2500  
Bachelor’s by dept. 50  
Master’s by dept. 5  
Ph.D. (77/80) ANT 8, AFA 1, GT 2, CS 1, ME 5. Total: 17

**STIPEND**  
Paid to student dollars months

**FEES**  
Paid by student ($) per week type of service

**SERVICE REQUIRED**

**DEGREES AWARDED**

Academic year 1979–1980

Bachelor’s by inst.  
Bachelor’s by dept.  
Master’s by dept.  
Ph.D. (77/80)

---

### University of Tulsa, Tulsa 74104

**DEPARTMENT OF MATHEMATICAL SCIENCES**  
William A. Coberly, Chairman  
Fellowship (1) 3100–4150 9 6 Grading, teaching
  
Teaching Assistantship (7) 3100–4150 9 7 Teaching
  
Research Assistantship (1) 2100–3100 9 15 Grading, research

**TYPE OF ASSISTANCE**  
Applications due: 4/1/81  
Faculty 13; Published 10  
Bachelor’s by inst. 900  
Bachelor’s by dept. 25  
Master’s by dept. 5

**STIPEND**  
Paid to student dollars months

**FEES**  
Paid by student ($) per week type of service

**SERVICE REQUIRED**

**DEGREES AWARDED**

Oregon State University, Corvallis 97330

**DEPARTMENT OF MATHEMATICS**  
R. M. Schori, Chairman  
Teaching Assistantship (34) 4600–5300 9 77/term 4 Teaching*

*Class meetings per week. Also office hours, minor miscellaneous duties.

**TYPE OF ASSISTANCE**  
Applications due: Open  
Faculty 34; Published 21  
Bachelor’s by inst. 2726  
Bachelor’s by dept. 21  
Master’s by dept. 6

**STIPEND**  
Paid to student dollars months

**FEES**  
Paid by student ($) per week type of service

**SERVICE REQUIRED**

**DEGREES AWARDED**

Ph.D. (77/80) AFA 1, GT 3, AM 2, Other 2. Total: 8

---

### Oregon

Oregon State University, Corvallis 97330

**DEPARTMENT OF MATHEMATICS**  
R. M. Schori, Chairman  
Teaching Assistantship (34) 4600–5300 9 77/term 4 Teaching*

*Class meetings per week. Also office hours, minor miscellaneous duties.

**TYPE OF ASSISTANCE**  
Applications due: 4/1/81  
Faculty 34; Published 21  
Bachelor’s by inst. 1483  
Bachelor’s by dept. 19  
Master’s by dept. 15

**STIPEND**  
Paid to student dollars months

**FEES**  
Paid by student ($) per week type of service

**SERVICE REQUIRED**

**DEGREES AWARDED**

---

### Portland State University, Portland 97207

**DEPARTMENT OF MATHEMATICS**  
E. A. Enneking, Head  
Teaching Assistantship (10) 3852–4068 9 80/term 15 Teaching

**TYPE OF ASSISTANCE**  
Applications due: 4/15/81  
Faculty 34; Published 11  
Bachelor’s by inst. 1483  
Bachelor’s by dept. 19  
Master’s by dept. 15

**STIPEND**  
Paid to student dollars months

**FEES**  
Paid by student ($) per week type of service

**SERVICE REQUIRED**

**DEGREES AWARDED**

---

### University of Oregon, Eugene 97403

**DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE**  
Stephen Hedetniemi, Head  
Teaching Fellowship (12) 3874–5624 9 75 20
  
Research Assistantship (4) 3874–5624 9 75 20

**DEPARTMENT OF MATHEMATICS**  
Theodore W. Palmer, Head  
Teaching Fellowship (35) 4600–5138 9 92/term 4 Teaching

**TYPE OF ASSISTANCE**  
Applications due: 4/15/81  
Faculty 11; Published 11  
Bachelor’s by inst. 2264  
Bachelor’s by dept. 52  
Master’s by dept. 26

**STIPEND**  
Paid to student dollars months

**FEES**  
Paid by student ($) per week type of service

**SERVICE REQUIRED**

**DEGREES AWARDED**

Ph.D. (77/80) AFA 1, GT 2, L 2, S 2, AM 2. Total: 16

---

### MASTER OF BUSINESS ADMINISTRATION—M.S. IN MATHEMATICS DUAL DEGREE

THE UNIVERSITY OF OKLAHOMA

The increasing use of mathematics in business is creating a need for managers and executives with a sophisticated knowledge of modern mathematics and its applications. The M.B.A.-M.S. in Mathematics Dual Degree will graduate students who can function effectively in the mathematics/business environment.

For more information about this program write

Department of Mathematics  
The University of Oklahoma  
Norman, OK 73019
Bucknell University, Lewisburg 17837
DEPARTMENT OF MATHEMATICS
David S. Ray, Head
Fellowship (2) $925 9
Teaching Assistantship (5) $3000 9
Scholarship (3) 9

Carnegie-Mellon University, Pittsburgh 15213
DEPARTMENT OF MATHEMATICS
George Fix, Head
Teaching Assistantship (18) $4275-$4725 9
Research Assistantship (11) $6000-$7200 12

Clarion State College, Clarion 16214
DEPARTMENT OF MATHEMATICS
Stephen I. Gendler, Chairman
Teaching Assistantship (1) $1350-$2700 9

Drexel University, Philadelphia 19104
DEPARTMENT OF MATHEMATICAL SCIENCES
Loren Argabright, Head
Teaching Assistantship (20) Waived 6 Teaching
Research Assistantship (4) $4000-$5000 9 Waived 20 Research

Indiana University of Pennsylvania, Indiana 15705
DEPARTMENT OF MATHEMATICS
James C. Reber, Chairman
Teaching Assistantship (3) $1325-$2705 9 20

Kutztown State College, Kutztown 19530
DEPARTMENT OF MATHEMATICS
Edward W. Evans, Chairman
Teaching Assistantship (1) $2705 9 Remitted 2 Teaching, tutoring

Lehigh University, Bethlehem 18015
DEPARTMENT OF MATHEMATICS AND DIVISION OF COMPUTING AND INFORMATION SCIENCE
Gilbert Stengle, Chairman
Fellowship (2) $4300 9
Teaching Assistantship (26) $4300 9
Scholarship (2) 9

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 Computer Science/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 $4000 to $5000 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

Applications due: 3/1/81
Faculty 18; Published 12
Grading, tutoring

Applications due: 3/15/81
Faculty 24; Published 21
Teaching, grading

Applications due: 4/15/81
Faculty 18; Published 4

Applications due: 3/15/81
Faculty 30; Published 22
Teaching

Applications due: 4/15/81
Faculty 18; Published 4

Bachelor's by inst. 739
Bachelor's by dept. 34

Bachelor's by inst. 827
Bachelor's by dept. 64
Master's by dept. 11
Ph.D. (77/80) AFA 4, GT 1, AM 9, ME 1. Total: 15

Bachelor's by inst. 879
Bachelor's by dept. 10
Master's by dept. 6

Bachelor's by inst. 950
Bachelor's by dept. 35
Master's by dept. 6
Ph.D. (77/80) ANT 1, AFA 1, AM 2. Total: 4

Bachelor's by inst. 2163
Bachelor's by dept. 32
Master's by dept. 11

Bachelor's by inst. 800
Bachelor's by dept. 16
Master's by dept. 5

Bachelor's by inst. 1000
Bachelor's by dept. 16
Master's by dept. 6
Ph.D. (77/80) ANT 3, AFA 3, GT 2. Total: 8
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<td>Pennsylvania State University, University Park 16802</td>
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<tr>
<td>Joseph M. Lambert, Acting Head</td>
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<td>Shippenburg State College, Shippensburg 17257</td>
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<tr>
<td>James L. Sieber, Chairman</td>
<td>2700 9</td>
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<td>Temple University, Philadelphia 19122</td>
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<td>Leon Steinberg, Chairman</td>
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<td>University of Pennsylvania, Philadelphia 19104</td>
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<td>Master's by dept. 3</td>
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<td>Chung-Tao Yang, Chairman</td>
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<td>Fellowship (1)</td>
<td>5000* 9</td>
<td>105**</td>
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<td>D. F. Morrison, Chairman</td>
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<td>Fellowship</td>
<td>3500—* 9</td>
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<td>-<em>4500</em>* 9</td>
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<tr>
<td>University of Pittsburgh, Pittsburgh 15260</td>
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<td>DEPARTMENT OF COMPUTER SCIENCE</td>
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<td>Orrin E. Taulbee, Chairman</td>
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<td>Teaching Fellowship (15)</td>
<td>4754—7131 8-12</td>
<td>18-20</td>
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<td>Teaching Assistantship (20)</td>
<td>4464—6696 8-12</td>
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<td>4464—6696 8-12</td>
<td>18-20</td>
<td>Development</td>
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*Late applications considered if positions still available.
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<tr>
<td>W. E. Deskins, Chairman</td>
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<tr>
<td>Fellowship (2)</td>
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<td>6C</td>
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<td>8–12</td>
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**DEPARTMENT OF MATHEMATICS AND STATISTICS**

Applications due: 3/15/81  
Faculty 49; Published 40  
Bachelor's by inst. 1476  
Bachelor's by dept. 15  
Master's by dept. 40  

**Grants and Scholarships**

*All rates are for 1980–81 and are expected to increase for 1981–82.*

**PUERTO RICO**

**University of Puerto Rico, Rio Piedras 00931**

**DEPARTMENT OF MATHEMATICS**

Applications due: 1/1/81  
Faculty 42; Published 9  
Bachelor's by inst. 3495  
Bachelor's by dept. 46  
Master's by dept. 3  

**Graduate Program in Computer Science**

Applications due: 5/1/81*  
Faculty 10; Published 2  
Bachelor's by inst. 490  
Bachelor's by dept. 17  

**Wilkes College, Wilkes-Barre 18766**

**DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

Applications due: 3/1/81  
Faculty 15; Published 6  
Bachelor's by inst. 1476  
Bachelor's by dept. 15  
Master's by dept. 40  

**Teaching Assistantship (7)**

3700  
9  
3000  
9

**RHODE ISLAND**

**Brown University, Providence 02912**

**DIVISION OF APPLIED MATHEMATICS**

Applications due: 1/15/81  
Faculty 22; Published 22  
Bachelor's by inst. 1154  
Bachelor's by dept. 37  
Master's by dept. 15  

**Graduate Program in Computer Science**

Applications due: 5/1/81*  
Faculty 10; Published 2  
Bachelor's by inst. 490  
Bachelor's by dept. 17  

**Graduate Program in Computer Science**

Applications due: 5/1/81*  
Faculty 10; Published 2  
Bachelor's by inst. 490  
Bachelor's by dept. 17  

*All rates are for 1980–81 and are expected to increase for 1981–82.*

**THE UNIVERSITY OF PITTSBURGH**

**DEPARTMENT OF MATHEMATICS AND STATISTICS**

offers new, structured programs leading to the M.A. and Ph.D. in APPLIED MATHEMATICS and in STATISTICS, as well as in PURE MATHEMATICS. The research faculty is headed by P. Masani, University Professor of Mathematics, C. R. Rao, University Professor of Statistics, and W. Rheinboldt, Academic Professor of Mathematics, and the department has two research institutes, the Institute for Computational Mathematics and Applications and the Institute for Statistics and Applications. Approximately 600 graduate students are receiving financial aid for two or three terms at a minimum of $500 per month.

For information and application blanks write to Graduate Admissions, Department of Mathematics and Statistics, University of Pittsburgh, Pittsburgh, PA 15260.
TYPE OF ASSISTANCE STIPEND FEES SERVICE REQUIRED DEGREES AWARDED
(number anticipated paid to student dollars paid by student ($) hours per week type of service Academic year
1981-1982) months)

DEPARTMENT OF MATHEMATICS Applications due: 1/15/81 Bachelor's by inst. 1154
Andrew Browder, Chairman Faculty 24; Published 22 Bachelor's by dept. 22
Fellowship (5) 3200–3600 9 Master's by dept. 3
Teaching Assistantship (20) 3800–4000 9 Teaching Ph.D. (77/80) ANT 6, AFA 3,
Research Assistantship (5) 3800–4000 9 Research GT 5. Total: 14

Rhode Island College, Providence 02908 Applications due: 4/1/81 Bachelor's by inst. 1000
DEPARTMENT OF MATHEMATICS Faculty 21; Published 7 Bachelor's by dept. 25
James T. Sedlock, Chair Master's by dept. 6
Teaching Assistantship (2) 2500 9 3C

SOUTH CAROLINA

Clemson University, Clemson 29631 Applications due: 3/1/81 Bachelor's by inst. 1793
DEPARTMENT OF MATHEMATICAL SCIENCES Faculty 46; Published 30 Bachelor's by dept. 38
John Fulton, Head Teaching Assistantship (52) 5420–6680 12 * 3-6C Teaching Ph.D. (77/80) ANT 4, AFA 3,
Research Assistantship (14) 6680 12 * 20 Research S 3, CS 3, OR 1, Other 2.
*$17 per hour for 6-9 hours. Total: 16

Medical University of South Carolina, Charleston 29403 Applications due: 2/1/81 Master's by dept. 4
DEPARTMENT OF BIOMETRY Faculty 18; Published 18
M. Clinton Miller III, Chairman Scholarship (18) 4050–5000 9

University of South Carolina, Columbia 29208 Applications due: 3/15/81 Bachelor's by inst. 2825
DEPARTMENT OF MATHEMATICS AND STATISTICS Faculty 41; Published 30 Bachelor's by dept. 21
W. T. Trotter, Chairman Master's by dept. 16
Teaching Assistantship (15) 4500–5600 9* 100/sem. 3-5 Teaching Ph.D. (77/80) ANT 1, AFA 1,
Research Assistantship (2) 4500 9* 100/sem. 20 Statistics lab P 2, S 1. Total: 5
*$Summer assistantships are $800–$1500 for one six week term; summer tuition is $25 per term.

UNIVERSITY OF SOUTH CAROLINA
DEPARTMENT OF MATHEMATICS AND STATISTICS

The Department offers Masters Degree programs with emphasis in Applied Mathematics, Mathematics, Statistics as well as multidisciplinary study in Statistical Computing and Numerical Computation.

Ph.D. students in Mathematics may specialize in numerous areas, including algebra, analysis, applied mathematics, discrete mathematics, logic, number 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 computing facilities.

FINANCIAL AID

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 statistics laboratory. 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.

For further information and application materials, contact the Director of Graduate Studies, Department of Mathematics and Statistics, University of South Carolina, Columbia, South Carolina 29208.
SOUTH DAKOTA

South Dakota School of Mines and Technology, Rapid City 57701
DEPARTMENT OF MATHEMATICAL SCIENCES
Applications due: 4/1/81
Dean C. Benson, Head
Faculty 10; Published 7
Teaching Assistantship (5) 4000 9 11.25/sem. hr. 5 C max.

South Dakota State University, Brookings 57007
DEPARTMENT OF MATHEMATICS
Applications due: 4/15/81
K. L. Yocom, Head
Faculty 15; Published 4
Teaching Assistantship (4) 2250–4500 9 11.25/cr. 3-6 C Teaching

University of South Dakota, Vermillion 57069
DEPARTMENT OF MATHEMATICAL SCIENCES
Applications due: 4/1/81
Wayne W. Gutzman, Chairman
Faculty 16; Published 3
Teaching Assistantship (6) 2400–2700 9 11.25/sem. hr. 4 Teaching

TENNESSEE

East Tennessee State University, Johnson City 37614
DEPARTMENT OF MATHEMATICS
Applications due: 3/1/81
William N. Anderson, Jr., Chairman
Faculty 18; Published 9
Teaching Assistantship (2) 2700–3000 9 500 20

Memphis State University, Memphis 38152
DEPARTMENT OF MATHEMATICAL SCIENCES
Applications due: 4/15/81
S. P. Franklin, Chairman
Faculty 28; Published 15
Teaching Assistantship (38) 4300–7000 9 32 per hr.* 6-7 Teaching
*Maximum $323.

Middle Tennessee State University, Murfreesboro 37132
DEPARTMENT OF MATHEMATICS
Applications due: 3/15/81
Harold S. Spraker, Chairman
Faculty 21; Published 1
Teaching Assistantship (12) 2450–2650 9 6 Teaching
*Preferred, but accepted at any time.

Tennessee Technological University, Cookeville 38501
DEPARTMENT OF MATHEMATICS
Applications due: 3/15/81*
J. T. B. Beard, Jr., Chairman
Faculty 22; Published 6
Teaching Assistantship (16) 4200 9 6 C Teaching

University of Tennessee, Knoxville 37916
DEPARTMENT OF COMPUTER SCIENCE
Applications due: *
Terry Feagin, Head
Faculty 15; Published 13
Fellowship (1) 3600 9 25/qtr.
Teaching Assistantship (18) 4100 9 25/qtr. 20 Teaching
Research Assistantship (1) 4800 12 ** 20 Research
*Assistantship: 3/1/81; Fellowship: 2/1/81.
**$30 per quarter hour plus $25 per quarter.

DEPARTMENT OF MATHEMATICS
Applications due: 3/1/81
John S. Bradley, Acting Head
Faculty 48; Published 35
Fellowship (1) 3600 12
Teaching Assistantship (59) 4248–4820 9 6-8 C
Research Assistantship (3) 7536–12000 12 840-2472

Vanderbilt University, Nashville 37235
DEPARTMENT OF MATHEMATICS
Applications due: 2/1/81
Richard R. Goldberg, Chairman
Faculty 23; Published 19
Teaching Fellowship (20) 4400 9 Waived 6 C

Ph.D. (77/80) AFA 3, GT 4,
P 2, ME 1, Other 4. Total: 14
Ph.D. (77/80) ANT 4, AFA 2.
Total: 6
TENNESSEE

Baylor University, Waco 76703
DEPARTMENT OF MATHEMATICS
Howard L. Rolf, Chairman
Applications due: 3/15/81
Teaching Assistantship (5) 3200–4000 9
STIPEND paid to student
1981-1982
Types of Assistance
number anticipated
12
Academic year
1979-1980
STIPEND paid to student
1981-1982
12
DEGREES AWARDED
1979-1980
Bachelor's by inst. 1694
Bachelor's by dept. 11
Master's by dept. 1

East Texas State University, Commerce 75428
DEPARTMENT OF MATHEMATICS
Dale Bedgood, Head
Applications due: 5/1/81
Teaching Assistantship (12) 3660 9 155 6 Teaching
APPLICATIONS DUE
Fees paid by student
1981-1982
15
SERVICE REQUIRED
1981-1982
12
Applications due: 3/1 S/81
Faculty 14; Published 7
Bachelor's by inst. 1320
Bachelor's by dept. 30
Master's by dept. 10

Lamar University, Beaumont 37710
DEPARTMENT OF MATHEMATICS
Richard A. Alo', Head
Applications due: 4/1/81
Teaching Fellowship (5) 4000–4500 9 * 20
APPLICATIONS DUE
Fees paid by student
1981-1982
15
SERVICE REQUIRED
1981-1982
12
Applications due: 7/1/81
Faculty 22; Published 4
Bachelor's by inst. 1110
Bachelor's by dept. 8
Master's by dept. 6

*In-state: $150 long semester; out-of-state: $460 long semester.

North Texas State University, Denton 76203
DEPARTMENT OF MATHEMATICS
John Ed Allen, Chairman
Applications due: 3/20/81
Teaching Fellowship (30) 4000–5000 9 200/sem. 6c Teaching
APPLICATIONS DUE
Fees paid by student
1981-1982
15
SERVICE REQUIRED
1981-1982
12
Applications due: 2/1/81
Faculty 19; Published 13
Bachelor's by inst. 1953
Bachelor's by dept. 7
Master's by dept. 4
Ph.D. (77/80) AFA 1. Total: 1

Pan American University, Edinburg 78539
DEPARTMENT OF MATHEMATICS
R. A. Close, Acting Head
Applications due: 7/1/81
Teaching Assistantship (2) 4392 9 400 6
APPLICATIONS DUE
Fees paid by student
1981-1982
15
SERVICE REQUIRED
1981-1982
12
Applications due: 3/15/81
Faculty 21; Published 7
Bachelor's by inst. 937
Bachelor's by dept. 24
Master's by dept. 2

Rice University, Houston 77001
DEPARTMENT OF MATHEMATICAL SCIENCES
R. A. Tapia, Chairman
Applications due: 2/1/81
Fellowship (6) 5900 9 10
Applications due: 3/15/81
Research Assistantship (4) 5900 9 10
Faculty 12; Published 12
Scholarship (16) 2900 9 10
DEPARTMENT OF MATHEMATICS
Applications due: 3/15/81
John C. Polking, Chairman
Fellowship (15) 5400–8700 9–12 6
Research Assistantship (5) 5400–8700 9–12 6
DEGREES AWARDED
1979-1980
Bachelor's by inst. 597
Bachelor's by dept. 597
Master's by dept. 1
Ph.D. (77/80) AFA 5, GT 1.
Total: 6

UNIVERSITY OF TENNESSEE, KNOXVILLE • * • GRADUATE STUDY IN APPLIED AND PURE MATHEMATICS

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 53 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. John S. Bradley, Acting Head, Department of Mathematics, University of Tennessee, Knoxville, Tennessee 37916
The University: North Texas State University is located in Denton, Texas, a city of 50,000 residents just 35 miles north of the Dallas-Fort Worth metroplex and about 25 miles north of the D/FW Airport. The North Central Texas climate is mild and the University’s location offers many cultural, recreational, and economic opportunities to students. The University enrolls more than 17,000 students with nearly one-third of these engaged in graduate study.

The Mathematics Library: The university maintains one of the nation’s finest library collections in the mathematical sciences with more than 17,000 volumes. The library currently subscribes to 572 mathematics journals, has 388 complete runs, and 729 journal titles represented.

The Mathematics Department: The Mathematics Department with a faculty of 19 offers courses of instruction leading to the B.A., B.S., M.A., M.S., and Ph.D. degrees in mathematics. More than 3,000 students enroll each semester in mathematics courses with 90 — 120 of these seeking a degree in mathematics. The department has positions for 24 — 30 teaching fellows who teach two three-hour classes each semester. The research and teaching interests of the faculty are varied so that students studying for a graduate degree are able to take substantial courses in core areas of mathematics (analysis, algebra, topology) as well as gain significant exposure to applied areas (numerical analysis and statistics). The faculty attempts to establish a close personal working relationship, however professional, with its students. Many students find this feature of our department to be very beneficial to their learning and doing mathematics, and their time with us a delightful (though exacting) experience.

Financial Assistance: The regular teaching fellow stipends are $4000 for students with a baccalaureate degree and $4400 for those with a master's degree in mathematics. Out-of-state fees are waived for teaching fellows and spouses. Teaching fellows may earn an additional $200 per semester by working in the Tutor Lab.

Special Awards: The department is able to award three Merit Teaching Fellowships of $4600 or $5000 (depending on degree earned) to persons who are exceptional students in mathematics.


For information contact John Ed Allen, Chairman, Department of Mathematics, North Texas State University, Denton, Texas 76203. Telephone 817-788-2155.

EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER
<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
<th>STIPEND paid to student dollars</th>
<th>FEES paid by student ($)</th>
<th>SERVICE REQUIRED hours per week</th>
<th>DEGREES AWARDED Academic year 1979-1980</th>
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<td><strong>Southern Methodist University, Dallas 75275</strong></td>
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<td>DEPARTMENT OF COMPUTER SCIENCE</td>
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<td>AND ENGINEERING</td>
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<td>William F. Leonard, Interim Chairman</td>
<td>Applications due: 4/1/81</td>
<td>Faculty 8; Published 4</td>
<td>Bachelor's by inst. 2177</td>
<td>Bachelor's by dept. 9</td>
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<td>DIVISION OF MATHEMATICAL SCIENCES</td>
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<td>Bachelor's by dept. 14</td>
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<td>AND COMPUTER SCIENCE</td>
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<td>John Spellmann, Chairman</td>
<td>Applications due: 6/30/81</td>
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<td>Stephen F. Austin State University, Nacogdoches 75062</td>
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<td>Craig A. Wood, Chairperson</td>
<td>Applications due: 4/81</td>
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<td>Bachelor's by dept. 16</td>
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<td>DEPARTMENT OF MATHEMATICS</td>
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<td>Bachelor's by dept. 3</td>
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<td>Teaching Assistantship (7)</td>
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<td><strong>Texas A&amp;M University, College Station 77843</strong></td>
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<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 3/1/81*</td>
<td>Faculty 73; Published 55</td>
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<td>Bachelor's by dept. 20</td>
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<td>H. E. Lacey, Head</td>
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<td>Teaching Assistantship (85)</td>
<td>4500-5400</td>
<td>6-8 Recitation section, related duties</td>
<td>Ph.D. (77/80) ANT 2, AFA 4. Total: 6</td>
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<td>*Late applications will be considered.</td>
<td>**May be extended through summer.</td>
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<td><strong>INSTITUTE OF STATISTICS</strong></td>
<td>Applications due: Open</td>
<td>Faculty 18; Published 18</td>
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<td>4500-4635</td>
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<td>GANT (3)*</td>
<td>4500</td>
<td>20 Teaching related</td>
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</table>

*Graduate Assistantship Nonteaching.

**SOUTHERN METHODIST UNIVERSITY**

**DALLAS, TEXAS 75275**

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

Department of Computer Science (M.S. & PH.D.)
Department of Mathematics (M.A. Mathematics; M.S. & PH.D. 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)
3-6 hr. teaching load

For information write: Graduate Director of appropriate department(s)
Texas Christian University, Ft. Worth 76129
DEPARTMENT OF MATHEMATICS
David Addis, Chairman

<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
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<td>5000</td>
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<td>Computer Center Traineeship (0-3)</td>
<td>5200</td>
<td>9</td>
<td>30</td>
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University of Houston, Houston 77004
DEPARTMENT OF MATHEMATICS
G. J. Etgen, Chairman

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<td>6$ Teaching</td>
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*Late applications considered is funds available.
**Based on 12 hours: resident—$50 tuition, $150 fees per semester; nonresident—$480 tuition, $150 fees per semester.

University of Texas at Arlington, Arlington 76019
DEPARTMENT OF MATHEMATICS
V. Lakshmikantham, Chairman

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University of Texas at Austin 78712
DEPARTMENT OF MATHEMATICS
James W. Daniel, Chairman

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<td>250-300 4-6$ *</td>
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<td>750</td>
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University of Texas at El Paso 79968
DEPARTMENT OF MATHEMATICAL SCIENCES
Eugene F. Schuster, Chairman

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University of Texas at San Antonio 78285
DEPARTMENT OF MATHEMATICS
AND COMPUTER SCIENCE
S. G. Wayment, Chairman

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<td>Bachelor's by inst. 608</td>
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THE UNIVERSITY OF TEXAS AT AUSTIN
Dodd Teaching Fellowship

Two Dodd Teaching Fellowships are available each year to graduate students new to UT Austin. They are renewable for one year upon (expected) superior performance. The stipend will be $7000 for nine months beginning in September, 1981; tuition is low but not waived. Due to the large stipend the duties are reduced from the standard teaching assistantship.

For further information and application materials write to:

Graduate Student Selection Committee
Mathematics Department
The University of Texas
Austin, Texas 78712
U T A H

Brigham Young University, Provo 84602
DEPARTMENT OF MATHEMATICS
Peter L. Crawley, Chairman

<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
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*Half tuition—tuition.
**Not available at this time.

DEPARTMENT OF STATISTICS
Alvin C. Rencher, Chairman

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University of Utah, Salt Lake City 84112
DEPARTMENT OF MATHEMATICS
Joseph L. Taylor, Chairman

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<td>Bachelor's by dept. 26</td>
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</table>

Ph.D. (77/80) ANT 1, AFA 4, GT 3, P 1, Other 9. Total: 18

Utah State University, Logan 84322
DEPARTMENT OF MATHEMATICS
Lawrence Cannon, Chairman

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<th>TYPE OF ASSISTANCE</th>
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<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
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<tr>
<td>Teaching Assistantship (12)</td>
<td>3000–6500 9 700</td>
<td>10c</td>
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<td>Bachelor's by inst. 1400</td>
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VERMONT

University of Vermont, Burlington 05405
DEPARTMENT OF MATHEMATICS
D. E. Moser, Chairman

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<td>Teaching Fellowship (11)</td>
<td>4000 9</td>
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STATISTICS PROGRAM AND BIOSTATISTICS PROGRAM
D. Sylwester, Director

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<td>Fellowship, Research (1)</td>
<td>4000 9 30</td>
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<td>6620 12 1600</td>
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<td>Scholarship (1)</td>
<td>5000 12</td>
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VIRGINIA

College of William and Mary, Williamsburg 23185
DEPARTMENT OF MATHEMATICS
AND COMPUTER SCIENCE
W. L. Bynum, Chairman

<table>
<thead>
<tr>
<th>TYPE OF ASSISTANCE</th>
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<td>Teaching Fellowship (2)</td>
<td>3500–3700 9</td>
<td>10-20 Research</td>
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<tr>
<td>Teaching Assistantship (4)</td>
<td>3650 9</td>
<td>10-20 Grading</td>
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George Mason University, Fairfax 22030
DEPARTMENT OF MATHEMATICAL SCIENCES
Richard Draper, Acting Chairman

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<td>Teaching Assistantship (1)</td>
<td>4300 9 *</td>
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<td>Bachelor's by dept. 10</td>
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</table>

*In-state: $888; out-of-state: $1656.

James Madison University, Harrisonburg 22807
DEPARTMENT OF MATHEMATICS
AND COMPUTER SCIENCE
Diane M. Spresser, Head

<table>
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<th>TYPE OF ASSISTANCE</th>
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<td>Teaching Assistantship (7)</td>
<td>3200 9</td>
<td>6</td>
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Bachelor's by dept. 20
Master's by dept. 5

Bachelor's by dept. 5
**THE DEPARTMENT OF MATHEMATICAL SCIENCES**

**OLD DOMINION UNIVERSITY**

offers a non-traditional M.S. program in COMPUTATIONAL AND APPLIED MATHEMATICS. The program enables students with varied backgrounds to master analytical and computational skills which can be applied to the quantitative aspects of their respective disciplines. Students must complete 36 credits of course work designed to fulfill an emphasis in either APPLIED MATHEMATICS or STATISTICS. Up to 12 of these credits can be chosen from a field of application (e.g. atmospheric sciences and oceanography, computer science, ecosystem analysis, economics and operations research, engineering mechanics) in which the student applies analytical and numerical techniques to another discipline. A master's thesis is not required.

Current enrollment in the program is 35 students. There are 20 faculty with research activity in analytical and numerical modeling in oceanography and meteorology, computational fluid dynamics and stability, elasticity and fracture mechanics, numerical analysis and approximation, mathematical biology and biostatistics, statistical inference, multivariate statistics, nonparametric statistics, and applied statistics.

ODU is a public, state-supported institution. The 102-acre campus is located in Norfolk, Virginia in the heart of the historic Tidewater region. Scientific facilities of this region include the NASA-Langley Research Center, the Institute for Computer Applications in Science and Engineering (ICASE), and the Atlantic Marine Center of the National Oceanic and Atmospheric Administration (NOAA).

Financial support of up to $6500 per year is available to graduate students.

For additional information and application forms, write to:

**Graduate Program Director**  
**Department of Mathematical Sciences**  
**Old Dominion University, Norfolk, VA 23508**

*Old Dominion University is an affirmative action/equal opportunity institution.*
Virginia Commonwealth University, Medical College of Virginia, Richmond 23298

DEPARTMENT OF BIOSTATISTICS

S. J. Kilpatrick, Chairman

Applications due: 3/1/81

Fellowship (6)
6640 12 1600

Research Assistantship (4)
6640–7500 12 1600

Virginia Commonwealth University, Richmond 23284

DEPARTMENT OF MATHEMATICAL SCIENCES

W. E. Haver, Chairman

Applications due: Open

Teaching Assistantship (15)
4800–5300 9 820

Research Assistantship (8)
5600–6300 9 299/qtr.

Virginia Polytechnic Institute and State University, Blacksburg 24061

DEPARTMENT OF STATISTICS

Jesse C. Arnold, Head

Applications due: 1/31/81

Teaching Assistantship (24)
5600–6300 9 299/qtr. 20

Research Assistantship (8)
5600–6300 9 299/qtr. 20

Central Washington University, Ellensburg 98926

DEPARTMENT OF MATHEMATICS

W. Frederick Cutlip, Chairman

Applications due: 2/15/81

Teaching Assistantship (4)
3750 228/qtr. 18

Eastern Washington University, Cheney 99204

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Ronald H. Dalla, Chairman

Applications due: 3/1/81

Teaching Assistantship (2-3)
3450 9 228/qtr.* 5c Teaching

University of Washington, Seattle 98195

BIOMATHEMATICS GROUP

Richard A. Kronmal, Chairman

Applications due: 4/81

Fellowship (19)
420/mo.*

Teaching Assistantship (8)**
606–682 9 900 = 4 qtrs. 20

Research Assistantship (22)
550–620 12 900 = 4 qtrs. 20

Scholarship
1000***

*Plus tuition.
**About 3 of these are supplementary, not full-time.
***Awarded occasionally to outstanding applicants as a supplement support to another form of support.

WASHINGTON

The mathematics faculty at Virginia offers a variety of graduate programs in algebra, analysis, probability and topology leading to Master of Arts, Master of Science and Doctor of Philosophy degrees.

Financial aid is available in the form of teaching assistantships and fellowships with tax-free stipends up to $5,000 plus tuition allowances.

For information write: Graduate Admissions Advisor
Department of Mathematics
Mathematics-Astronomy Building
University of Virginia
Charlottesville, Virginia 22903
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<th>FEES</th>
<th>SERVICE REQUIRED</th>
<th>DEGREES AWARDED</th>
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<td>(number anticipated</td>
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<td>paid by</td>
<td>hours of service</td>
<td>Academic year</td>
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<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 2/15/81</td>
<td>Faculty 55; Published 40</td>
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<tr>
<td>Teaching Fellowship (1)</td>
<td>7272</td>
<td>991</td>
<td>10 Teaching</td>
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<td>Teaching Assistantship (62)</td>
<td>5454-7778</td>
<td>771</td>
<td>20* Teaching</td>
<td>Ph.D. (77/80) ANT 1, AFA 9, GT 1, L 4, P 1, CS 1, OR 1, Other 3: Total: 21</td>
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<td>Research Assistantship (5)</td>
<td>5220-5580</td>
<td>771</td>
<td>Research</td>
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<td>*4 to 6 hours in class plus office hours and preparation time.</td>
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<td>DEPARTMENT OF STATISTICS</td>
<td>Applications due: 2/15/81</td>
<td>Faculty 7; Published 7</td>
<td>Bachelor’s by inst. 5151</td>
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<tr>
<td>Michael Perlman, Chairman</td>
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<td>Teaching Assistantship (4)</td>
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<td>771</td>
<td>10-20 Teaching, grading</td>
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<td>Research Assistantship (2)</td>
<td>5000-5500</td>
<td>771</td>
<td>10-20 Research</td>
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<td>Minority Fellowship (1-2)</td>
<td>250-4752</td>
<td>771*</td>
<td>Exemption possible.</td>
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<td>Washington State University, Pullman 99163</td>
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<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Applications due: 3/1/81</td>
<td>Faculty 14; Published 12</td>
<td>Bachelor’s by inst. 3000</td>
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<tr>
<td>Narisingh Deo, Chairman</td>
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<td>Bachelor’s by dept. 35</td>
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<td>Teaching Assistantship (9-15)</td>
<td>614*-651*</td>
<td>770</td>
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<td>577.50</td>
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<td>20 Research</td>
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<td>*Per month.</td>
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<td>Master’s by dept. 8</td>
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<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 2/81</td>
<td>Faculty 29; Published 24</td>
<td>Bachelor’s by inst. 1531</td>
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<td>James A. Cochran, Chairman</td>
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<td>Bachelor’s by dept. 43</td>
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<td>Teaching Assistantship (30)</td>
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<td>770</td>
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<td>WEST VIRGINIA</td>
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<td>Marshall University, Huntington 25701</td>
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<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 4/1/81</td>
<td>Faculty 15; Published 6</td>
<td>Bachelor’s by inst. 890</td>
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<td>John S. Lancaster, Chairman</td>
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<td>Bachelor’s by dept. 4</td>
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<tr>
<td>Teaching Assistantship (5-10)</td>
<td>900-2500</td>
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<td>6pc*</td>
<td>Master’s by dept. 4</td>
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<td>*5-10 hours of varied duties.</td>
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<tr>
<td>West Virginia University, Morgantown 26506</td>
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<tr>
<td>DEPARTMENT OF MATHEMATICS</td>
<td>Applications due: 3/1/81</td>
<td>Faculty 32; Published 14</td>
<td>Bachelor’s by inst. 2744</td>
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<tr>
<td>Vadim Komkov, Chairman</td>
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<td>Bachelor’s by dept. 5</td>
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<td>3222</td>
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<td>Remitted 10-15 Teaching, assisting</td>
<td>Master’s by dept. 4</td>
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<td>DEPARTMENT OF STATISTICS</td>
<td>Applications due: 3/15/81</td>
<td>Faculty 21; Published 18</td>
<td>Bachelor’s by inst. 2744</td>
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<td>Donald F. Butcher, Chairman</td>
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<td>Bachelor’s by dept. 38</td>
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<td>Teaching Assistantship (11)</td>
<td>3222-3474</td>
<td>25/sem.</td>
<td>14 Teaching, consulting</td>
<td>Master’s by dept. 14</td>
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<td>Research Assistantship (5)</td>
<td>4302-5736</td>
<td>25/sem.</td>
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<td>University of Wisconsin, Madison 53706</td>
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<td>DEPARTMENT OF COMPUTER SCIENCES</td>
<td>Applications due: 1/15/81</td>
<td>Faculty 33; Published 29</td>
<td>Bachelor’s by inst. 4897</td>
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<td>L. E. Travis, Chairman</td>
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<td>Bachelor’s by dept. 28</td>
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<td>Fellowship (6)</td>
<td>7152</td>
<td>680/sem.</td>
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<td>Teaching Assistantship (30)</td>
<td>6950-7318</td>
<td>680/sem.</td>
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<td>Research Assistantship (15)</td>
<td>6696</td>
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<td>20 Research</td>
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<td>Teaching Assistantship (30)</td>
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<td>(number anticipated 1981-1982)</td>
<td>paid to student dollars per term</td>
<td>paid by student ($)</td>
<td>hours per week</td>
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</tbody>
</table>

**DEPARTMENT OF MATHEMATICS**

Fred Brauer, Chairman

| Fellowship (4) | 4800–5886 | * | Teaching Assistantship (35) | 4633–7318 | 9 * | 13-20 Teaching | Bachelor's by inst. 4897 |
| Research Assistantship (3) | 5481 | 9 * | 20 Research | Ph.D. (77/80) ANT 6, AFA 14, |

*In-state $85.25 per credit hour; out-of-state $258.25 per credit hour.

**DEPARTMENT OF STATISTICS**

John Gurland, Chairman

| Fellowship (1-4) | 7152 | 12 | 1237 | Bachelor's by inst. 4897 |
| Teaching Assistantship (28-32) | 6951–7319 | 9 | 1237 | 20 Teaching |
| Research Assistantship (25-30) | 5580 | 9 | 1237 | 20 Research |

**University of Wisconsin, Milwaukee 53201**

Robert L. Hall, Chairman

| Fellowship (2) | 5715 | 9 | 663 | Bachelor's by inst. 2576 |
| Teaching Assistantship (30) | 7083–7317 | 9 | 663 | 6c |

**University of Wisconsin, Oshkosh 54901**

N. J. Kuenzi, Chairman

| Teaching Assistantship (1-2) | 3900 | 9 | 800 | Bachelor's by inst. 1300 |

**Wyoming**

**University of Wyoming, Laramie 82071**

Henry R. Bauer III, Head

| Teaching Assistantship (4) | 4500 | 9 | 18 | Teaching |
| Research Assistantship (1) | 4500 | 9 | 18 | Research |

**DEPARTMENT OF STATISTICS**

Lyman L. McDonald, Head

| Fellowship (2) | 500/mo. | 12 | 18 | Research |
| Teaching Assistantship (8) | 4500 | 9 | 18 | 2 labs, grading |

| Research Assistantship (3 or more) | 4500 | 9 | 18 |

*Resident: $217 per semester.

**Canadian**

**Acadia University, Wolfville, Nova Scotia B0P 1X0**

F. Chipman, Head

| Fellowship (2) | 4000 | 9 | 1240 |

**Carleton University, Ottawa, Ontario K1S 5B6**

K. S. Williams, Chairman

| Scholarship and Teaching Assistantship (30) | 4000–8000 | 12 | 5-10 Teaching, grading, tutoring |

*Tuition varies according to citizenship: Canadians and Landed Immigrants, $360 per term; others, $790 per term.

**Dalhousie University, Halifax, Nova Scotia B3H 4H8**

A. Thompson, Head

| Fellowship (8) | 5200–7200 | 12 |
| Teaching Assistantship (8) | 5200–7200 | 12 | 10 Grading |

Ph.D. (77/80) ANT 1, AFA 2, S 1. Total: 4
<table>
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<tr>
<th>Type of Assistance</th>
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<th>Service required</th>
<th>Degrees Awarded</th>
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<td><strong>Lakehead University, Thunder Bay, Ontario P7B 5E1</strong></td>
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<tr>
<td>Department of Mathematical Sciences</td>
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<tr>
<td>W. Eames, Head</td>
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<td>Teaching Assistantship (no limit)</td>
<td>3000 9</td>
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<td>Scholarship (1)</td>
<td>1000 9</td>
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<td>Bachelor's by dept. 11</td>
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<td>Bursary (1)</td>
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<td>NSERC Scholarship</td>
<td>7000/yr.</td>
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<tr>
<td>OGS Scholarship</td>
<td>1630/term</td>
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<tr>
<td><strong>McGill University, Montreal, Quebec H3A 2K6</strong></td>
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<tr>
<td>Department of Mathematics</td>
<td>Applications due: 2/15/81</td>
<td>Faculty 14; Published 9</td>
<td></td>
<td>Bachelor's by dept. 74</td>
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<tr>
<td>J. R. Choksi, Chairman</td>
<td>Faculty 47; Published 30</td>
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<td>Master's by dept. 7</td>
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<tr>
<td>Fellowship (*)</td>
<td>4000 12</td>
<td>600/750</td>
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<td>Ph.D. (77/80) Total: 13</td>
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<td>600/750</td>
<td>12 Grading</td>
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<td>Scholarship (*)</td>
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<td>*Number not known at this time.</td>
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<tr>
<td><strong>Queen's University, Kingston, Ontario K7L 3N6</strong></td>
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<tr>
<td>Department of Mathematics and Statistics</td>
<td>Applications due: 3/1/81</td>
<td>Faculty 47; Published 31</td>
<td></td>
<td>Bachelor's by dept. 2672</td>
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<tr>
<td>L. L. Campbell, Head</td>
<td>Faculty 29; Published 25</td>
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<td>Master's by dept. 7</td>
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<td>Teaching Assistantship (24)</td>
<td>1500–6600 12</td>
<td>0-10 Grading</td>
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<td>Ph.D. (77/80) ANT 2, AFA 2, P 1, S 2, AM 2, Other 1.</td>
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<td>University Scholarship (10)</td>
<td>1000–5000 12</td>
<td>Research</td>
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<td>OGS, NSERC, SSHRC</td>
<td>4800–11200 12</td>
<td>Research</td>
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<tr>
<td>*Number not known at this time.</td>
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</tr>
<tr>
<td>*Varies according to citizenship and program. Visa students tuition $1,950 per year. Canadians or Landed Immigrants: Master's $750 per year; Ph.D.'s $1,500 per year.</td>
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*Not fixed.*

**$885-$1665 for complete program over 1 to 3 years. Additional $750 per year for non-Canadian students.

University of Ottawa, Ottawa, Ontario K1N 9B4

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<th>M. Deruaz, Chairman</th>
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*Interdisciplinary Program.

**University de Sherbrooke, Sherbrooke, Québec J1K 2R1**

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<th>Pierre-Yves Leduc, Directeur</th>
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*Or 7/1/81.

**Full-time.

THE UNIVERSITY OF ALBERTA – EDMONTON

GRADUATE STUDIES IN MATHEMATICS AND STATISTICS

| Teaching Assistantships: $6,000 – $7,000 (In addition to the above, Summer Research Assistantships of at least $1,800 are generally available). |
| For further information write: Chairman, Graduate Committee Department of Mathematics University of Alberta Edmonton, Alberta, Canada T6G 2G1 |

THE UNIVERSITY OF CALGARY

Graduate Studies in Mathematics and Statistics

<p>| Teaching and Research Assistantships: $4,160 to $6,600 for 8 months. In addition summer support of about $2,000 is generally available. |
| For further information write to: The Director of Graduate Studies, Department of Mathematics and Statistics, The University of Calgary, Calgary, Alberta, Canada T2N 1N4. |</p>
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University of Western Ontario, London, Ontario N6A 5B9

DEPARTMENT OF COMPUTER SCIENCE
I. Gargantini, Acting Chairman

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DEPARTMENT OF MATHEMATICS
D. Borwein, Head

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* Tuition for visa students is $2260 but visa students with sufficiently high academic standing may receive bursaries to defray the additional fees.

STATISTICAL AND ACTUARIAL SCIENCES
I. B. MacNeill, Acting Chairman

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University of Windsor, Windsor, Ontario N9B 3P4

DEPARTMENT OF MATHEMATICS
H. R. Atkinson, Chairman

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*Foreign students.

York University, Downsview, Ontario M3J 1P3

DEPARTMENT OF MATHEMATICS
G. Denzel, Chairman

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*Under negotiation with union.
**Canadian citizens or Landed Immigrants $915; foreign students $1950.

SELECTED TABLES IN MATHEMATICAL STATISTICS

THE DISTRIBUTION OF THE SIZE OF THE MAXIMUM CLUSTER OF POINTS ON A LINE
by Norman D. Neff and Joseph I. Naus

Researchers in many fields deal with the clustering of events in time and space. The probabilities of large clusters under various models are tools of the natural, physical and social sciences. The present book provides probabilities for the size of the largest cluster of random points on the line. Tables of exact values and functional forms are given. A wide variety of applications is given.

Those who will benefit from this volume are researchers who seek to investigate unusual clustering. These include quality control experts investigating clusters of defectives, communications engineers who design system capacity to accommodate clusters, and experts in epidemiology, traffic control, ecology and many other fields who study the clustering of events in time and space. Just as experts in these and other fields use the binomial, Poisson, negative binomial and other distributions, the present tables are an important addition to statistical, technical and scientific libraries.

To order, please specify TABLES/6.

Volume 6, vii + 207 pages (hard cover)
List price $12.80, institutional member $9.60, individual member $6.40
ISBN 0-8218-1906-2; LC 74-6283
Publication date: June 1980
To order, please specify TABLES/6.
NUMERICAL ANALYSIS

edited by
Gene H. Golub and Joseph Oliger

Lecture Notes from the Short Course
sponsored by the AMS, Atlanta, January 3–4, 1978

This is the collection of texts prepared by the lecturers of the Numerical Analysis Short Course given at the A.M.S. meeting in Atlanta, Georgia in January 1978. Computational linear algebra, optimization and the solution of nonlinear equations, the approximation of functions and functionals, and approximations for initial and boundary value problems for ordinary and partial differential equations are discussed. Methods such as the QR factorization, singular value decomposition, quasi-Newton and secant methods, finite difference, finite element and collocation methods are included in these discussions.

The subject matter was chosen to emphasize prominent research areas and attitudes in numerical analysis. These are introductory lectures on the subject matter for presentation to an audience of scientists from other areas or disciplines. Typically, there is an introduction to a given problem area and to techniques used, an application to applied problems, and a discussion of current research questions or directions.

Several trends in modern numerical analysis are discussed in these lectures. There has always been the quest to find the best way to do things. More realistic notions of "best" are evolving which incorporate the classical notions and realistic costs of producing the desired result. The discussion of good vs. best approximation is an example. More attention is being given to providing not only an answer, but a computed guarantee that it is a good answer—or a poor one. Easily computed and sharp a posteriori estimates are needed. The discussion of estimates of condition numbers is an example. There is progress being made in algorithm design based on operator splittings which allow one to take advantage of being able to solve simpler sub-problems very efficiently. Updating strategies for optimization and splitting methods for differential equations are examples.

These texts should be useful to the practicing users of numerical methods, programmers, scientists, and engineers who would like to know what progress is being made on the theoretical and developmental side of the subject. They should be useful to numerical analysts to review progress in areas other than their own, and to mathematicians in general who would like to understand what the concerns of numerical analysts are. The texts should be useful for the development of seminars and reading courses in the academic environment. Many will probably find the bibliographies of current work most useful.

THE LECTURERS AND TITLES

CLEVE MOLER, Three Research Problems in Numerical Linear Algebra
J. E. DENNIS, JR., A Brief Introduction to Quasi-Newton Methods
CARL De BOOR, The Approximation of Functions and Linear Functionals:
  Best vs. Good Approximation
JAMES M. VARAH, Numerical Methods for the Solution of Ordinary Differential Equations
JOSEPH E. OLIGER, Methods for Time Dependent Partial Differential Equations
GEORGE J. FIX, Variational Methods for Elliptic Boundary Value Problems
Critical, Historical, or Expository Theses

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.

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<tr>
<th>State</th>
<th>University/Department</th>
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<tr>
<td>California</td>
<td>Univ California, Davis Mathematics</td>
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<td>Univ California, Los Angeles Biomathematics</td>
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<td>Colorado</td>
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<td>Univ Northern Colorado, Greeley Mathematics</td>
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<td>Univ Miami, Coral Gables Mathematics</td>
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<td>Hawaii</td>
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<td>Idaho</td>
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<td>Iowa</td>
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<td>Kansas</td>
<td>Kansas State Univ, Manhattan Mathematics</td>
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<td>Univ Kansas, Lawrence Computer Science</td>
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<td>Michigan</td>
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<td>Univ Michigan, Ann Arbor Mathematics</td>
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<td>Missouri</td>
<td>Saint Louis Univ, St. Louis Mathematical Sciences</td>
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<td>Univ Montana, Missoula Mathematics</td>
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<td>New Hampshire</td>
<td>Dartmouth Coll, Hanover Mathematics</td>
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<td>New York</td>
<td>Adelphi Univ, Garden City Mathematics and Computer Science</td>
<td>Other</td>
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<td>Syracuse Univ, Syracuse Mathematics</td>
<td>Ph.D.</td>
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OHIO
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Mathematics
Ph.D.
Univ Cincinnati, Cincinnati
Mathematical Sciences
Ph.D.

VIRGINIA
Virginia Commonwealth Univ,
Medical Coll of Virginia
Biostatistics
Ph.D.

OKLAHOMA
Oklahoma State Univ, Stillwater
Mathematics
Ed.D.

WASHINGTON
Washington State Univ, Pullman
Computer Science
Ph.D.

PENNNSYLVANIA
Carnegie-Mellon Univ, Pittsburgh
Mathematics
D.A.
Temple Univ, Philadelphia
Mathematics, Statistics
Ph.D.

WISCONSIN
Univ Wisconsin, Madison
Mathematics, Statistics
Ph.D.

TENNESSEE
Memphis State Univ, Memphis
Mathematical Sciences
Ph.D.

WYOMING
Univ Wyoming, Laramie
Mathematics
Ph.D.

TEXAS
Southern Methodist Univ, Dallas
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Univ Texas, Austin
Mathematics
Ph.D.

CANADA
Univ Toronto, Toronto, Ontario
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This extensively revised and expanded edition of Lectures in Differentiable Dynamics, first published in 1971, provides an authoritative exposition of the central results of this fundamental and rapidly developing mathematical subject, starting from simple engineering systems and proceeding to current research topics concerning differentiable flows on manifolds. The original version of this monograph culminates in the research results of the 1960s, emphasizing the concepts of structural stability and generic dynamics—with references to Morse-Smale and Anosov hyperbolic differential systems. In the new edition there appears a general updating to cover research of the past decade through 1980, with a major supplemental Appendix reviewing the modern developments under five basic areas: I. Nonlinear Oscillations, II. Diffeomorphisms and Foliations, III. General Theory—Dissipative Dynamics, IV. General Theory—Conservative Dynamics, V. Chaos, Catastrophe, and Multi-Valued Trajectories.

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This book will be of interest to professional mathematicians specializing in differential geometry, or differential or topological dynamics, who seek a guide to the current literature and “state of the art” in the expanding and bewildering research ramifications of qualitative dynamics. The monograph will also be valuable to mathematical engineers and physical scientists, who would like an overview of the modern directions of research and conceptual frameworks that are evolving within qualitative dynamics. The motivations of nonlinear oscillations in engineering, physics, astronomy, as well as biology and economics, are shown to contribute to the abstract and general formulations of Differentiable Dynamics.

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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 1981. (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 teaming 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, plus book allowance, 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 modelling. 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 Graduate Fellowship Section, California Student Aid Commission, 1410 Fifth Street, Sacramento, California 95814. The application deadline for 1981-1982 awards is February 12, 1981.

**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 Street, Alexandria, Virginia 22311.

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, General Electric Foundation, Fairfield, Connecticut 06431.

Georgia Institute of Technology. President's Fellowships. These stipends of $5,000 for twelve months, plus waiver of all tuition and fees, are awarded to first-year Ph.D. students and exceptional Masters students by the Dean of Graduate Studies. The awards are highly competitive; selection is based on academic criteria and evidence of scholarship. No services to the Institute are required, but participants are expected to maintain high academic standing. Prospective students who consider themselves highly qualified for an award should include with their application for admission a letter describing in as much detail as possible their qualifications and needs. Write to the Director of the School of Information and Computer Science, Georgia Institute of Technology, Atlanta, Georgia 30332.

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 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; Cornell University; Courant Institute of Mathematical Sciences, New York University; Georgia Institute of Technology; Massachusetts Institute of Technology; Polytechnic Institute of New York; Princeton University; Rensselaer Polytechnic Institute; Rice University; University of Rochester; Stanford University; Texas A & M University; Vanderbilt University; and University of Wisconsin, Madison. 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 in the Engineering Sciences 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 uncataloged 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 of up to $3,400 for one year. Application deadline is March 15, 1981, for the award period September 1, 1981–August 31, 1982. For application materials write: Hubert H. Humphrey Fellowship Program, U.S. Arms Control and Disarmament Agency, Washington, D.C. 20451.
Johns Hopkins University. Tuition scholarships and stipends 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.

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 $6,000, with allowances: $1,000 for spouse and child, $1,500 for spouse and two or more children. 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.

Kenneth O. May Fellowship in the History of Mathematics. Awarded to students pursuing a graduate degree in the history of mathematics in the Institute for the History and Philosophy of Science and Technology at the University of Toronto. Candidates must have a comprehensive preparation in mathematics, a good exposure to historical or philosophical issues, and the ability to write lucidly and effectively. The stipend is $5,500 plus academic fees. It is awarded for a twelve-month period, and is renewable. Further information and application forms may be obtained by writing to Charles V. Jones, Institute for the History and Philosophy of Science and Technology, University of Toronto, Toronto, Ontario M5S 1A1, Canada. Deadline for applications is February.

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 $4,800 for a 12-month tenure ($400 per month), regardless of level of study. No dependency allowances. Education allowance paid to fellowship institution. Scores attained on the Graduate Record Examinations (GRE) are used in evaluation of applicants. Application deadline November 26, 1980. 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 $4,800 for 12-month tenures, plus tuition allowance. No dependency allowances. The deadline for applications is November 26, 1980. 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.

Smithsonian Institution. Predoctoral Fellowships. Appointments to students who 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. $8,000 stipend, plus research expense allowance and relocation 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 request of applications is November 14.

**POSTDOCTORAL SUPPORT**

**Air Force Office of Scientific Research. Research Contracts and Grants.** Mathematicians and scientists in the computer 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 1, 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, automatic control, and computer 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. Stipends for 1981–1982 are to be at least $17,000 each plus $500 for expenses; application deadline for 1981–1982 awards is December 31, 1980. 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.** Programs in science and engineering research in collaboration with the National Aeronautics and Space Administration research centers; for U.S. citizens who are faculty or research members of institutions of higher education. Stipends are likely to be $450/week for ten weeks, plus travel allowance. Application deadline is February 1. For published announcement 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. Navy-, and DOE-ASEE Summer Faculty Research Programs.** Programs in science and engineering research at the laboratories and R&D centers of the Navy and Department of Energy; for U.S. citizens who are faculty or research members of institutions of higher education. Stipends are approximately $450/week, plus travel allowance. For a program announcement write to 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 $14,000 to $19,000 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 organisation. 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. 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 $20,000 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 from 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 1981 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 Dr. Kendall W. King, Vice-President-Grants, Research Corporation, 405 Lexington Avenue, New York, New York 10174.

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 $18,500. 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, 1981. 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 1981-1982 must be submitted before January 1, 1981. 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 John Eriksson, 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 autumn 1981. Appointment is for two years with an annual salary of $20,000, instruction averaging four hours a week; supplementary summer salary can usually be arranged. Application deadline is January 15, 1981. Further information may be obtained from the Chairman, Department of Mathematics, University of Chicago, 5734 University Avenue, Chicago, Illinois 60637.

DOT Faculty Fellow Program. The Intergovernmental Personnel Act provides 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, basic research, and the overall tenor of national transportation. The Faculty Fellow Program is open to qualified full-time faculty members at accredited universities or colleges. Fellows work on specific problems which are of concern to DOT and which need detailed study. For further information write to the U.S. Department of Transportation, Office of University Research, DPB-50, Research and Special Programs Administration, Washington, D.C. 20590.

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 1981. 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 1980-1981 salary is $17,750; an increase is expected for 1981-1982. 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 1981.

John Simon Guggenheim Memorial Foundation Fellowships. Fellows 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 $16,500 in 1980. For more information write to Gordon N. Ray, President, John Simon Guggenheim Memorial Foundation, 90 Park Avenue, New York, New York 10016.

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E. R. Hedrick Assistant Professorships in Mathematics. Department of Mathematics, University of California, Los Angeles, will make two appointments for the year 1981-1982. 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 $22,900, 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, 1981. 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 $18,000 for academic year 1981-1982 with good possibility of additional income during the summer. Appointment 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. Applications will be announced by the middle of February. Applications should be made to Professor A. L. Shields, Acting 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 $17,000. 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 Joseph Stampfli, Chairman, Department of Mathematics, Swain Hall East, Indiana University, Bloomington, Indiana 47405. Preference will be given to applications received before January 1, 1981. 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. Candidates (of any age) must have a doctorate and no more than five years of postdoctoral professional experience when the fellowship commences. The duration of each fellowship will be eleven months. Generally the stipend will be in the range of $24,000-$32,000, depending on qualifications. Completed applications should be received by January 15, 1981. At most two fellowships will be awarded. Notification will be made by March 15, 1981. Write to Director, Mathematical Sciences Department, IBM Thomas J. Watson Research Center, P.O. Box 218, Yorktown Heights, New York 10598.

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 1981-1982. 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, 1981. 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 one- or 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.

**Lawrence Livermore Laboratory.** Postdoctoral research appointments and graduate research assistantships. Areas of special interest include development of computer systems, computer graphics, numerical analysis, and programming science. U.S. citizenship required. Inquiries should be directed to John E. Ranelletti (L-61). Computation Department, Lawrence Livermore Laboratory, University of California, Livermore, California 94550.

**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 N. C. Kimerly, Los Alamos Scientific Laboratory, University of California, P.O. Box 1663, Los Alamos, New Mexico 87545.

**Los Alamos Scientific Laboratory.** *J. Robert Oppenheimer Research Fellowship.* 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: $29,400/yr; application deadline: December 31 each year. For additional information write to N. C. Kimerly, 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, including fluid dynamics, solid mechanics, reactive systems, applied analysis (primarily nonlinear PDE and ODE), 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. 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 by January 15. 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 $14,000 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 $11,500. 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 $18,600, 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. Applications are now being accepted for the 1982-1983 academic year.

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. Most programs are open to senior investigators as well as recent Ph.D.'s. Most are also open to foreign nationals as well as U.S. citizens. Applications for these competitive awards will be received by the National Research Council until January 15, 1981. Appointments will be made in the spring. Stipends will vary according to the type of appointment, but will not be less than $20,500. 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. Mathematical Sciences Postdoctoral Research Fellowships. These fellowships provide a stipend of $20,000 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 3, 1981; awards will be announced in early March, 1981. Applications will be accepted in core mathematics, applied mathematics, and statistics. For further details write to Alvin I. Thaler, Program Officer for Special Projects, Mathematical Sciences Section, 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 3, 1980. Applications may be obtained by writing the Fellowship Office, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

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, 1981 should be in the hands of the Foundation six to nine months prior to the desired starting date of such support, but no later than October 25, 1980. Instructions for the preparation of proposals, contained in a booklet entitled "Grants for Scientific Research," may be obtained upon request from the Forms and Publications Office, National Science Foundation, 1800 G Street, N.W., 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 five or more years of full-time teaching experience, have not previously held a Science Faculty Professional Development award, 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 January 5, 1981. Application materials can be obtained from the Faculty-Oriented Programs, Division of Scientific Personnel Improvement, National Science Foundation, Washington, D.C. 20550.

Office of Naval Research. Supports research over a wide range of areas including applied mathematics, numerical analysis, 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: 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.

Postdoctoral Fellowships for Minorities. Administered by the National Research Council, these fellowships are sponsored by the Ford Foundation with additional support from the National Endowment for the Humanities. Applicants must be U.S. citizens who are members of one of the designated minority groups (American Indians and Alaskan Natives—Eskimo or Aleut, Black Americans, Mexican Americans/Chicano, or Puerto Ricans), who are engaged in college or university teaching, and hold a doctoral degree. Tenure of the one-year fellowship provides postdoctoral research experience at an appropriate nonprofit institution of the Fellow's choice. The deadline date for the submission of applications is February 2, 1981. Further information and application materials may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418.

Benjamin Felree Lectureships. Harvard University. Rank of Assistant Professor. The appointments are for three years with a starting salary of approximately $17,100 (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, One Oxford Street, Cambridge, Massachusetts 02138. Applications must be filed by January 1, 1981. Harvard is an Equal Opportunity/Affirmative Action Employer.

Sloan Foundation. Unrestricted grants made to selected university scientists in the physical sciences, mathematics, applied mathematics, economics, 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 10111.

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. Fourteen thousand dollars stipend, plus research expense allowance and relocation 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, Smithsonian Institution, Room 3300, L’Enfant Plaza, Washington, D.C. 20560.

State University of New York at Buffalo. George William Hill and Emmy Noether Research Instructorships for 1981-1982. Applicants should be Ph.D.'s whose degrees will be completed by September 1, 1981. All areas of pure and applied mathematics will be considered. Each appointment is for two years. The twelve-month stipend, beginning September 1981, is up to $19,000, 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 the Dr. Zbigniew Zielezny, Chairman, Hill-Noether Committee, Department of Mathematics, SUNY/Buffalo, 106 Diefendorf Hall, Buffalo, New York 14214, so as to arrive by January 20, 1981. SUNY/Buffalo is an Equal Opportunity/Affirmative Action Employer. SUNY/Buffalo is 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 competitive salary. Possibilities exist for additional summer support. 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, 1981 and no earlier than 1979. In addition to a letter expressing interest in a Tamarkin Assistant Professorships, the applicant should have three letters of recommendation sent to the Department of Mathematics by January 1, 1981. For more information, applicants should write to the Executive Officer, Department of Mathematics, Brown University, Providence, Rhode Island 02912. Women and members of minority groups are encouraged to apply. Equal Opportunity/Affirmative Action Employer.

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 organisations: Associated Western Universities, 136 East South Temple (Suite 2200), Salt Lake City, Utah 84111; Argonne Division of Education Programs, 9700 South Cass Avenue, Argonne, Illinois 60439; Brookhaven National Laboratory, Upton, New York 11973; 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, and Human Services, 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 California, Irvine. Irvine Lectureships in Mathematics. These lectureships enable those with the doctorate in mathematics, who show definite promise in research, to participate in an environment of vigorous mathematical research and instruction. The one-year appointment is renewable for a second year and carries an annual salary of $16,680. Teaching duties are comparable to those of the regular faculty, although Irvine Lecturers are expected to direct a seminar in their research specialty. Applications and three letters of recommendation must be received by February 15, and should be accompanied by a curriculum vitae and an account of works in print or preparation, and a brief description of research plans. Women and members of minority groups are encouraged to apply. All enquiries and applications should be sent to: The Irvine Lectureships in Mathematics, Department of Mathematics, University of California, Irvine, California 92717.

University of Wisconsin, Madison. Van Vleck Assistant Professorships in Mathematics. Applications are invited from outstanding mathematicians who are recipients of a doctorate. People are sought who will interact well with members of the department, who care about teaching, and who can contribute to the research and instructional programs. The regular teaching load is two courses per semester, with at least one in the applicants 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 $18,000 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, Wisconsin 53706. University of Wisconsin-Madison is an Equal Opportunity Employer.

H. C. Wang Research Instructorship. During the first year the holder of a Wang Instructorship 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 instructorship is nonrenewable after a three-year term. The 1980-1981 salary was $18,100. Applications and letters of reference 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 $16,000 is supplemented by a two-month resident 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, 1981.

TRAVEL AND STUDY ABROAD

Alliance Française de New York. For U.S. Nationals, a limited number of scholarships for graduate study and research in France. Fields unrestricted. Scholarships are in the amount of $2,000 to $3,000. 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, Israel. 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 December 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-Institute of Technology, Haifa. The grant includes a professorial salary and cost of travel. Deadline for completed applications is December 1, 1980. 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, hold a B.A. degree or the equivalent, 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 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 for living expenses of grantee and family, and a small incidental allowance for supplies and services essential to the project. Subject to the availability of funds, a supplemental dollar grant for lecturers in most non-European countries may be given. Scholars are invited to register for annual announcements published in March. Application deadlines are June 1 for Australia, New Zealand, and American Republics; July 1 for Africa, Asia, and Europe for grant periods twelve-eighteen months later. Write to Council for International Exchange of Scholars, Suite 300, Eleven Dupont Circle, Washington, D.C. 20036.

**Minna-James-Heineman-Stiftung.** Graduate Support. Fellowships towards obtaining the doctorate are granted for a maximum period of not more than one year and carry 800 DM monthly. They are provided to candidates of all nationalities whose performance is above average and from whom the academic promotion can be expected during the period of the fellowship. Applicants who intend to teach are preferred. For details of application requirements and further information write
Minna-James-Heineman-Stiftung. Research Abroad. Grants are given to scientists of all nationalities to carry out research in foreign countries, thereby serving scientific knowledge and international cooperation. Awards are made for a maximum period of not more than one year with a maximum amount of 1,500-2,000 DM per month. The applicant must be a graduate, and applicants teaching at universities are preferred. The deadline for applications is February 1 each year. For details of application requirements and further information write to Minna-James-Heineman-Stiftung, Am Hohen Ufer 6, D-3000 Hannover 1, Federal Republic of Germany.

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 (Ph.D., etc), 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 1981-1982. 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. Deadline for applications July 1 each year. For details contact the Council for International Exchange of Scholars, Attention: Indo-American Fellowships Program, Eleven Dupont Circle, Washington, D.C. 20036.

International Research and Exchanges Board (IREX). This board administers academic exchange programs, open to advanced graduate students, postdoctoral scholars, and faculty members in all fields of study who are United States citizens, and who are affiliated with a North American college or university. Exchange agreements are in effect with Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania, Yugoslavia, and the USSR. Placements are usually made for a semester or an academic year, but longer or shorter stays are possible by special arrangement. For more detailed information, write to the International Research and Exchanges Board, 655 Third Avenue, New York, New York 10017.

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 600,000 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.

Kosciuszko Foundation. Graduate and Postgraduate Exchange with Poland. Open to U.S. citizens. Candidates must have at least a master's degree and a knowledge of the Polish language. Apply by January 15 for the following academic year. Write to Scholarship and Exchange Programs, Kosciuszko Foundation, 15 East 65th Street, New York, New York 10021.

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: 3100 Massachusetts Avenue, N.W., Washington, D.C. 20008; (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 1981 through December 1982 in the USSR, Bulgaria, Czechooslovakia, the German Democratic Republic, Hungary, Poland, Romania or Yugoslavia. Short-term (one month) and long-term (three to twelve months) visits are 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 $1,400/month for long-term visits and paid expenses for accompanying family on visits of five months or more. Application request deadline is October 17. For further information, write to the National Academy of Sciences, Section on 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. Travel awards for U.S. citizens who are either predoctoral students or individuals who have held a doctoral degree for seven years or less as of the starting date of the Institute, to attend North Atlantic Treaty Organization (NATO) Advanced Study Institutes in Europe. Applications are made to the appropriate NATO Institute Director who nominates eligible candidates. Information may be obtained by writing to the International Travel Grant Program, Division of International Programs, Washington, D.C. 20550.

North Atlantic Treaty Organisation. 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.

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

Rotary Foundation. Graduate Scholarships and Undergraduate Scholarships. One academic year of study abroad for the 1982-1983 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 scholarships 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 scholarship must have obtained a bachelor's degree or equivalent prior to the beginning of his 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 his scholarship year. Application must be made through the Rotary Club nearest to the applicant's permanent residence not later than March 1, 1981.

Royal Norwegian Council for Scientific and Industrial Research. Postdoctoral 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, 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 two 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, 1800 G Street, N.W., Washington, D.C. 20550.

Weizmann Institute of Science. Feinberg Graduate School Postdoctoral Fellowships. The Fellowships provide a twelve-month stipend of approximately IL 320,000 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.
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 $2,000 to $3,500. Applicants must have a working knowledge of English. For further information, write to Commission Franco-Américaine d'Echanges Universitaires et Cultures, 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 Program.** Grants under the Fulbright 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. 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 Commission for Educational Exchange or Educational Foundation in the candidate’s own country (address may be obtained from the United States Embassy or Consulate).

**International Research and Exchanges Board (IREX).** Provides opportunities for foreign scholars and students to receive training and to conduct research at academic institutions in the United States. The sending country nominates its own participants to the exchanges, while the receiving country undertakes to place the nominees at appropriate institutions of higher learning, normally for periods of a semester or an academic year. Soviet and East European scholars interested in the various exchange programs administered by IREX should consult the agencies in their own countries which administer the exchanges. These are: Department of Personal Scientific Exchange, Division of International Scientific-Technical Cooperation, State Committee for Science and Technical Progress, 39 Dondoukov Boulevard, Sofia, Bulgaria; Foreign Department, Ministry of Education of the Czech Republic, Karmelitska, 7, Prague 1, Czechoslovakia, or International Department, Ministry of Education of the Slovak Republic, Suvorovova 16, Bratislava, Czechoslovakia; Ministry for Higher and Technical Education of the German Democratic Republic, Marx-Engels Platz 2, 102 Berlin, German Democratic Republic; Institute for Cultural Relations with Foreign Countries, V. Dorottya utca 8, Budapest, Hungary; International Relations Department, Ministry of Science, Higher Education and Technology, ul. Miodowa 6/8, Warsaw, Poland; National Council for Science & Technology, Str. Roma 32-24, Bucharest, Romania; Federal Administration for International Scientific, Cultural, Educational, and Technical Cooperation, Kosancicev Venac 29, 11000 Belgrade, Yugoslavia; Department of Foreign Relations, Ministry of Higher and Specialized Secondary Education of the USSR, Lyusinovskaya 51, Moscow, USSR, or Department of Foreign Relations, Academy of Sciences of the USSR, Leninskii prospekt 14, Moscow V-71, USSR.

**Kennedy Scholarships.** For citizens of the United Kingdom, these grants are for graduate study at Harvard University or the Massachusetts Institute of Technology. Application deadline is October 31. Write to Secretary, Kennedy Memorial Trust, Association of Commonwealth Universities, 36 Gordon Square, London WC1H 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.
Organisation 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, Organisation 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

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


The Foundation Center, 888 Seventh Avenue, New York, New York 10106, 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 Biennially) Educational Testing Service, P.O. Box 2606, Princeton, New Jersey 08541. 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 81-1 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 and postdoctoral levels 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.

**Kappa Kappa Gamma Fraternity.** Awards for graduate study. Application forms are available from Dr. Miriam Locke, Chairman of Fellowships, Kappa Kappa Gamma Fraternity, 1715 Fourth Street, Tuscaloosa, Alabama 35401.


**National Endowment for the Humanities.** The Endowment operates through three fellowship 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.

**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.

**Scholarships, Fellowships and Loans News Service.** The Staff, Bellman Publishing Company, P.O. Box 164, Arlington, Massachusetts 02174, published quarterly, $26.00 per year. Up-to-date information regarding student financial aid. Annotated bibliography of books and professional journals.

**Selected List of Fellowship Opportunities and Aids to Advanced Education for United States Citizens and Foreign Nationals.** 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.

**Sigma Delta Epsilon, Graduate Women in Science, Inc.** Awards for graduate support. Information and application forms may be obtained from: Sigma Delta Epsilon, Graduate Women in Science, Inc., Room 1102, 1346 Connecticut Avenue, N.W., Washington, D.C. 20036.

**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.

**The Southern Fellowships Fund.** Offers a limited number of faculty and administrative training fellowships for minority faculty persons. Samuel M. Nabrit, Executive Director, 795 Peachtree Street, N.E., Atlanta, Georgia 30365.
Student Aid Annual, 1980–1981. Catalog No. 502A. $13.20 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.


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Second-hand Book and Journal Exchange

It has been proposed that the AMS determine whether there is an interest in a Second-Hand Book Exchange at the annual and summer meetings. The exchange was tested on a small scale at the Ann Arbor meeting this past August, and met with moderate success.

At the Joint Books and Journals display at the Annual Meeting in San Francisco, notebooks will be available with lists of books on mathematics for sale or being sought. There will be separate notebooks of books for sale and books wanted with names and addresses of the owners (or seekers). The details of the transactions themselves would have to be arranged by the participants and the AMS will not accept responsibility for settling disputes if arrangements go awry.

Professor Keith Dennis has volunteered to keep the lists for a period of about two months after the meeting, and to send copies to anyone interested for the cost of copying and mailing. His address is Department of Mathematics, White Hall, Cornell University, Ithaca, New York 14853.

It is necessary to charge a small fee to cover the cost of preparing the notebooks. Each person participating is asked to pay $2 for the first page and $1 for each additional page (one side is one page). Books for sale must be listed on separate pages from books wanted (as many of either per page as one wishes), and the lists made up on 8.5” × 11” papers.

Please include the information below.

Books Offered: Name, address, telephone, will or will not be at the meeting. Author, title, publisher, year of publication, condition of book (for example, slightly used, annotated lightly or heavily, like new). Price or books wanted in trade.

Books wanted: Name, address, telephone, will or will not be at the meeting. Author, title, publisher, edition, price one is willing to pay.

Those who use this service at the meeting will be asked to make suggestions concerning its usefulness or improvement. If the interest is sufficient, the service will be continued at the next annual meeting, possibly at that time expanded to include lists from libraries seeking replacements for lost out-of-print books and lists from second-hand book dealers.

Please send your lists to:

Promotion Department, AMS
P. O. Box 6248, Providence, R.I. 02940

Make checks payable to the AMS. If you have questions, call Phoebe Murdock, 401-272-9500, extension 237.
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