



UNIVERSITY OF MINNESOTA

Fall Commencement, 1983

AUGUST AND DECEMBER GRADUATE SCHOOL
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Additional copies of this program are available from the Department of University Relations, 6 Morrill Hall, 100 Church St. S.E., University of Minnesota, Minneapolis, Minnesota 55455.

THE BOARD OF REGENTS requests that the following Northrop Memorial Auditorium procedures or regulations be adhered to. (1) Smoking is confined to the outer lobby on the main floor, to the gallery lobbies, and to the lounge rooms. (2) The use of cameras or tape recorders by members of the audience is prohibited. (3) The sale of tickets by anyone other than authorized box office personnel is prohibited in the lobby or corridors of Northrop Memorial Auditorium.

Your University

CHARTERED in 1851 by the Legislative Assembly of the Territory of Minnesota, the University of Minnesota this year celebrated its one hundred and thirty-second birthday. One of the great land-grant universities in the nation, the University of Minnesota is dedicated to training young men and women to be our future leaders. Each year, graduates add new skills and knowledge to the existing resources of the state. They have been trained as physicians, lawyers, engineers, social workers, teachers, journalists, dentists, pharmacists, nurses, scientists, farmers, business people—to name but a few of the careers for which preparation is offered. Since its founding, the University has awarded over 365,000 degrees, each one in recognition of the successful completion of a challenging academic program.

In addition to giving collegiate instruction to nearly 59,000 students annually on its Twin Cities, Duluth, Morris, Crookston, and Waseca campuses and at the Mayo Medical and Graduate Schools in Rochester, the University offers special training for those who wish to study part-time through Continuing Education and Extension. The University also offers educational opportunities through its Agricultural Extension Service, with county agents, home agents, 4-H club agents, and recreation and health consultants available to provide help to Minnesotans in their own homes.

In the many research laboratories on the University's five campuses, at the agricultural experiment stations throughout the state—the Rosemount Research Center, the Cloquet Forestry Center, the Cedar Creek Natural History Area near Bethel, the Horticultural Research Center at Excelsior, the Landscape Arboretum at Chanhassen, the Lake Itasca Forestry and Biological Station, the Sand Plain Experimental Field at Becker, and the Hormel Institute at Austin—and at the University Hospitals, University scientists are at work on experiments of great potential importance to the quality of our lives. Research projects are leading to new knowledge in such areas as learning disabilities, drug abuse, urban and environmental problems, health care delivery systems, and computer technology. The progress made in these and other areas will have a profound impact on the lives of Minnesotans and people throughout the world.

THE UNIVERSITY continues to be a cultural center of the Upper Midwest as the home of radio station KUOM, the University Theatre, the Bell Museum of Natural History, and the local performances of the Metropolitan Opera Company.

Minnesotans have good reason to be proud of their University, not only because it is one of the leading state universities in the country, but also because of the extent and quality of its services to the people of the state, their families, communities, and organizations. The interest of Minnesotans in their University is a dynamic thing, and it expresses itself in many ways. Their contributions have made it possible to build the Variety Club Heart Hospital and the Mayo Memorial Building. Through the American Legion and its auxiliary posts all over the state, thousands of friends have made generous donations to endow a research professorship in heart disease. Other contributions have built the Masonic Cancer Center, the Veterans of Foreign Wars Cancer Research Center and Diehl Hall, which houses the biomedical library and medical research facilities.

Generous contributions by corporations, associations, foundations, trade unions, clubs, and individuals have made hundreds of grants and fellowships available to

deserving students. Friends and supporters of the University, who are aware of the financial impact of increased specialization, work continuously to increase the funds available for student assistance.

COMMENCEMENT marks the conclusion only of the student's academic life at the University. As a graduate, he or she is part of its history and part of its future as well. Alumni are urged to continue their relationship with the University through the Minnesota Alumni Association and its college groups.

Alumni and their families and friends will always be welcome here. The University's doors will be open to those who come back to visit and to keep in touch with an important part of their lives.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap.

August Candidates for Degrees

Subject to the completion of all curriculum requirements at the close of second summer session, degrees will be conferred as indicated on those listed below and on others meeting the graduation requirements. Degrees are listed alphabetically.

GRADUATE SCHOOL

Doctor of Education

Carolyn Nelson Mortensen, Hastings
B.S. cum laude '65, Mankato State University;
M.S. '70, Wisconsin State University, River Falls.
Cert. Spec. Ed. '74, University of Minnesota. Major:
Educational Administration. Minor: Supporting
Program. Project: A Comparative Analysis on the
Role of One- and Two-Building Elementary School
Principals. Major Adviser: Prof. V.D. Mueller.

Doctor of Musical Arts

Ronald Norman Albrecht, Indianola,
Iowa
B.A. '75, Augsburg College; M.F.A. '79, University
of Minnesota. Major: Music. Minor: Supporting
Program. Major Adviser: Prof. R.T. Laudon.

Dorit Samuel, Israel
B.M. '75, University of Tel-Aviv; M.F.A. '79, Uni-
versity of Minnesota. Major: Music. Minor: Sup-
porting Program. Major Adviser: Prof. B.D.
Weiser.

Louis William Tornow, Bismarck,
N.D.
B.M. magna cum laude '71, Concordia College;
M.A. '78, Trinity University. Major: Music. Minor:
Supporting Program. Major Adviser: Prof. B.D.
Weiser.

Doctor of Philosophy

Katerina Adam, Athens, Greece
Dipl. '78, National Technical University of Athens;
M.S. '80, University of Minnesota. Major: Metal-
lurgy and Materials Science. Minor: Mineral Engi-
neering. Thesis: Grinding Media Corrosion and
Its Effect on Flootation of Sulfide Minerals. Major
Advisers: Profs. W.W. Gerberich and Iwao
Iwasaki.

Ahmad Fuad Afdhal
Sarj. Farm. '79, Bandung Institute of Technology;
M.S. '81, University of Minnesota. Major: Social
and Administrative Pharmacy. Minor: Supporting
Program. Thesis: Patterns of Innovative Behavior
of Community Pharmacists. Major Adviser: Prof.
A.I. Wertheimer.

Douglas Grinnell Anderson
B.A. magna cum laude '72; M.S. '76, University of
Minnesota. Major: Microbiology. Minor: Support-
ing Program. Thesis: Genetic and Physical Charac-
terization of Recombinant Plasmids Associated
with Cell Aggregation and High Frequency Conju-
gal Transfer in *Streptococcus Lactis* ML3. Major
Adviser: Prof. L.L. McKay.

Stuart Mitchell Anderson,
Minneapolis
B.A. cum laude '78, Augsburg College. Major:
Physics. Minor: Supporting Program. Thesis: The
Study of a Mass Spectrometer-Beam System for
Measurements of Ozone and Other Minor Con-
stituents of the Stratosphere. Major Adviser: Prof.
Konrad Mauersberger.

James Charles Balogh, Minneapolis
B.A. magna cum laude '75, St. John's University;
M.S. '79, University of Minnesota. Major: Soil Sci-
ence. Minor: Forestry. Thesis: Tall Shrubs in
Northern Minnesota. Major Adviser: Prof. D.F.
Grigal.

William Edmond Barber, Stanford,
Conn.
B.A. '77, University of Vermont. Major: Chemis-
try. Minor: Supporting Program. Thesis: Part I:
Peak Shape Analysis in High Performance Liquid
Chromatography. Part II: UV-Visualization of Inor-
ganic Anions by Reverse Phase Ion-Interaction
Chromatography. Major Adviser: Prof. P.W. Carr.

Michael Dean Bentley, Minneapolis
B.S.'68, Central Michigan University; M.S.'73, University of Minnesota. Major: Veterinary Anatomy. Minor: Animal Physiology. Thesis: The Kidney of the Mongolian Gerbil (*Meriones unguiculatus*): Morphology and Effect of Antidiuretic Hormone on the Collecting Duct System. Major Adviser: Prof. C.M. Czarnecki.

Mary-Ann Bjornsti, West Nyack, N.Y.
B.S. cum laude '78, New York State University College, Cortland. Major: Genetics. Minor: Supporting Program. Thesis: *In Vitro* DNA-gp3 Packaging in the *Bacillus subtilis* Bacteriophage 029. Gene 16 Function in *Bacillus subtilis* Bacteriophage 029 DNA Encapsidation. Major Adviser: Prof. D.L. Anderson.

Steven Mark Bonser, Palmerton, Pa.
B.S.'74, Kutztown State College; M.S.'77, Bucknell University. Major: Chemistry. Minor: Supporting Program. Thesis: The Synthesis and Chemistry of Trans-Bicyclo[4.1.0]Hept-3-Ene. Major Adviser: Prof. P.G. Gassman.

Jefim Efrim Boritz, Toronto, Canada
B.A.'72, M.B.A.'74, York University. Major: Business Administration. Minor: Supporting Program. Thesis: Planning and Review by Auditors. Major Adviser: Prof. G.B. Davis.

Richard Paul Burlingame,
Westchester, Ill.
B.S.'75, University of Illinois. Major: Biochemistry. Minor: Chemical Engineering. Thesis: The Degradation of 3-Phenylpropionic Acid by *Escherichia coli* K-12. Major Adviser: Prof. P.J. Chapman.

Jeanette M. Cardamone Carter
B.A.'62, Rosemount College; M.S.'65, Purdue University. Major: Home Economics. Minor: Museology. Thesis: Evaluation of Degradation in Museum Textiles Using Infrared Photography and Property Kinetics. Major Adviser: Prof. Peter Brown.

Elizabeth Mary Cholawsky,
Langhorne, Pa.
B.A. cum laude '78, Franklin and Marshall College. Major: Political Science. Minor: Supporting Program. Thesis: The Determinants of Weapons Acquisitions in the United States. Major Adviser: Prof. B.I. Job.

Steven Boyd Clauser, Wilmette, Ill.
B.A. magna cum laude '75; M.A.'79, University of Minnesota. Major: Political Science. Minor: Supporting Program. Thesis: A Comparative Analysis of State Discretionary Medicaid Policies for the Mentally Retarded and Developmentally Disabled. Major Adviser: Prof. V.H. Gray.

Murray Keith Clayton, Canada
B.Math. with honors '79, University of Waterloo. Major: Statistics. Minor: Mathematics. Thesis: Bayes Sequential Sampling for Choosing the Better of Two Populations. Major Adviser: Prof. D.A. Berry.

David Lee Clough, Hastings
B.S.'68, M.Ed.'71, Spec.'74, University of Nebraska. Major: Educational Administration. Minor: Supporting Program. Thesis: An Investigation of the Job of the Personnel Generalist in Minnesota Schools. Major Adviser: Prof. T.L. Mazzoni.

Nancy Kelly Cooper
B.A.'73, M.A.'77, University of Minnesota. Major: Classical Area Studies. Thesis: The Development of Roof Revetment of Ancient Greek Temples. Major Adviser: Prof. W.D. Coulson.

Sheila Ann Corcoran, Eden Prairie
B.S.'59, College of St. Catherine; M.Ed.'63, University of Minnesota. Major: Educational Psychology. Minor: Philosophy. Thesis: Decision Making by Nurses Concerning Drug Administration Plans To Control Pain. Major Adviser: Prof. P.E. Johnson.

Harry Thomas Cralle, Chicago, Ill.
B.S. with high honors '77, Illinois State University; M.S.'79, University of Minnesota. Major: Agronomy. Minor: Supporting Program. Thesis: Photosynthate Partitioning in Alfalfa Populations Selected for High Nitrogen Fixation Capability. Major Adviser: Prof. G.H. Heichel.

Warren Christopher F.H. Day
B.A. cum laude '78, Washington University. Major: Mineralogy and Petrology. Minor: Supporting Program. Thesis: Petrology and Geochemistry of the Vermilion Granitic Complex, Northern Minnesota. Major Adviser: Prof. P.W. Weiblen.

Robert Roger Deuson
B.S. with honors '74, California State Polytechnic University; M.S.Ag.E.'76, New Mexico State University. Major: Agricultural Economics. Minor: Economics. Thesis: The Lower Moulouya Irrigation Project: An Assessment of Its Socio-Economic Impact on the North-East of Morocco. Major Adviser: Prof. W.B. Sundquist.

Bau-Sen Du, Taiwan
B.S.'72, M.S.'74, Tsing-Hua University. Major: Mathematics. Minor: Supporting Program. Thesis: Bifurcations of Diffeomorphisms on R^3 . Major Adviser: Prof. G.R. Sell.

Dana Lyle Eaton, Davenport, Iowa
B.S.'73, B.S. with honors '78, Iowa State University; M.S.'81, University of Minnesota. Major: Plant Breeding. Minor: Supporting Program. Thesis: The Incorporation of Unadapted Germplasm into Adapted Spring Wheat. Major Adviser: Prof. R.H. Busch.

Barbara A. Elliott, Grand Rapids
B.A. magna cum laude '69, M.A. '75, University of Minnesota. Major: Sociology. Minor: Supporting Program. Thesis: Families Managing Chronic Stress: Role Enactment with Physically Disabled Children. Major Adviser: Prof. T.J. Litman.

Edward F. Emanuel
B.A. '65, M.A. '66, San Jose State College. Major: Theatre Arts. Minor: Supporting Program. Thesis: A Study of the Plays of Paddy Chayefsky with a Special Emphasis on the Play *The Passion of Josef D.* Major Adviser: Prof. V.M. Fredricks.

Rolf Charles Enger, Sheboygan, Wis.
B.A. summa cum laude '72, St. Olaf College; M.S. '77, Air Force Institute of Technology. Major: Electrical Engineering. Minor: Physics. Thesis: Holographic Optical Elements with Ultra-High Spatial Frequencies. Major Adviser: Prof. S.K. Case.

Ellen A. Farber, New York, N.Y.
B.S. magna cum laude '78, Newcomb College of Tulane University. Major: Psychology. Minor: Supporting Program. Thesis: Individual Differences in Emotional Responsivity Among Preschool Children. Major Adviser: Prof. Byron Egeland.

Carlos Doyle Fear, Murray, Iowa
B.S. '75, Iowa State University; M.S. '78, University of Arkansas. Major: Horticulture. Minor: Plant Breeding. Thesis: An Investigation of Off-Season Flowering in Lowbush and Half-High Highbush Blueberries. Major Adviser: Prof. F.I. Laurer.

Mary Ann J. Feldman, Minneapolis
B.A. summa cum laude '54, University of Minnesota. Major: Music. Minor: English. Thesis: George P. Upton: Journalist, Music Critic and Mentor to Early Chicago. Major Adviser: Prof. Johannes Riedel.

David Gary Finkelman, Brooklyn, N.Y.
B.A. magna cum laude '72, State University of New York, Buffalo. Major: Psychology. Minor: Supporting Program. Thesis: The Relationships of Children's Attributes to Levels of Competence and Familial Stress. Major Adviser: Prof. Norman Garnezy.

David Lance Garshelis, Clark, N.J.
B.A. '75, University of Vermont; M.S. '78, University of Tennessee. Major: Wildlife. Minor: Supporting Program. Thesis: Ecology of Sea Otters in Prince William Sound, Alaska. Major Adviser: Prof. D.B. Simff.

Cecilie Judson Gaziano, Minneapolis
B.S. '65, West Virginia University; M.A. '74, University of Minnesota. Major: Mass Communication. Minor: Supporting Program. Thesis: The Influence of New Media and Citizen Groups on the Knowledge Gap in an Inner-City Neighborhood. Major Adviser: Prof. P.J. Tichenor.

Farah Gilanshah, Tehran, Iran
B.A. '75, National University of Iran; M.A. '81, University of Minnesota. Major: Sociology. Minor: Supporting Program. Thesis: The Iranians of the Twin Cities. Major Adviser: Prof. D.A. Martindale.

Thomas Patrick Gill, Oaklawn, Ill.
B.S. '78, University of Notre Dame. Major: Chemistry. Minor: Supporting Program. Thesis: The Photochemistry of Transition Metal Arene Complexes. Major Adviser: Prof. K.R. Mann.

Judith Anne Gillespie, Bloomington, Ind.
B.A. '68, Northwestern University. Major: Political Science. Minor: Supporting Program. Thesis: Political Processes in School Environments: An Ecological Study of School Settings. Major Adviser: Prof. R.T. Holt.

Thomas Link Guggenheim, Northridge, Calif.
B.A. cum laude '78, St. Olaf College. Major: Chemistry. Minor: Supporting Program. Thesis: The Study of a-Cyano Carbocations. Major Adviser: Prof. P.G. Gassman.

Charles Lanny Guy, Danedin, Fla.
B.A. '73, University of South Florida; M.S. '77, Florida Technological University. Major: Horticulture. Minor: Supporting Program. Thesis: Changes in Glutathione Levels During Cold Acclimation and Its Role in Freezing Tolerance. Major Adviser: Prof. J.V. Carter.

John Henry Hagge, Minneapolis
B.A. magna cum laude '74, St. Olaf College; M.A. '77, University of Minnesota. Major: English. Minor: Latin. Thesis: The Logic of Business Writing. Major Adviser: Prof. R.L. Brown, Jr.

William V. Hall
B.A. magna cum laude '70, St. John's University. Major: Psychology. Minor: Supporting Program. Thesis: A Study of the Relationship Between Vocational Needs and Job Satisfaction Among University of Minnesota Graduates. Major Adviser: Prof. R.V. Dawis.

Barbara Lynn Haller, Adams, N.Y.
B.A. '75, Cornell University. Major: Genetics. Minor: Supporting Program. Thesis: Genetic Analysis of the Thioredoxin and Glutathione Enzyme Systems in *Escherichia coli*. Major Adviser: Prof. J.A. Fuchs.

**Barbara Ann Hamann, Lamoni,
Iowa**

B.A. '68, Graceland College; M.A. '69, Northeast Missouri State University. Major: Education. Minor: Public Health. Thesis: The Effects of a Course in Basic Concepts in Physical Education on Selected Health Attitudes and Behavior of College Freshman. Major Adviser: Prof. E.M. Jaeger.

Edward George Hames III, St. Paul
B.A. '72, University of Minnesota. Major: Physiology. Minor: Supporting Program. Thesis: Output Projections from Clarke's Column and the Role of Supraspinal Systems in Modulating the Exteroceptive DSCT. Major Adviser: Prof. J.R. Bloedel.

Paul David Hanke

B.S. '77, M.S. '79, University of Minnesota. Major: Biochemistry. Minor: Supporting Program. Thesis: Regulation of Ribonucleoside Diphosphate Reductase mRNA Synthesis in *Escherichia coli*. Major Adviser: Prof. J.A. Fuchs.

**Jean Lois Thompson Hanson, Little
Canada**

B.S. '63, M.S. '70, North Dakota State University. Major: Vocational Education. Minor: Supporting Program. Thesis: An Analysis of Selected Factors Affecting the Satisfaction with Secondary Cooperative Centers in Minnesota by Local Education Policymakers. Major Adviser: Prof. G.I. Swanson.

Dennis Nathaniel Harvey, Chaska

B.M.E. with high distinction, M.S.M.E. '77, University of Minnesota. Major: Mechanical Engineering. Minor: Supporting Program. Thesis: Measurement of Flow Stress in the Flange During Deep Drawing. Major Advisers: Profs. D.A. Frohrib and D.R. Riley.

Gaston E. Henandez D., Chile

Mag. Mat. '76, Universidad Tecnica del Estado. Major: Mathematics. Minor: Supporting Program. Thesis: Existence of Solutions of Populations Problems with Nonlinear Diffusion. Major Adviser: Prof. D.G. Aronson.

**David William Heughins, Cheshire,
Conn.**

B.A. '66, Eastern Nazarene College; M.A. '71, University of Minnesota. Major: History. Minor: Supporting Program. Thesis: R.D. Hampden and the "Oxford Malignants": The Hampden Controversy of 1836. Major Adviser: Prof. J.L. Altholz.

James Raymond Howe, Rochester

B.A. '80, University of Minnesota. Major: Pharmacology. Minor: Physiology. Thesis: Spinal Alpha2-Adrenoceptors: Relevance to Nociception, *In Vitro* Characterization, Changes in Response to Spinal Noradrenergic Denervation with Intrathecal 6-Hydroxydopamine. Major Adviser: Prof. T.L. Yaksh.

Gail Frances Hughes, Minneapolis

B.S. with distinction '68, M.A. '76, University of Minnesota. Major: Education. Minor: Supporting Program. Thesis: The Relationship of Learning to Congruence Between Students' Ideal and Perceived Learning Environments. Major Adviser: Prof. R.D. Kimpston.

Mansour Javidan, Iran

B.S. '76, Arya-Mehr University of Technology. Major: Business Administration. Minor: Supporting Program. Thesis: Determinants of Success in Formal Planning Systems. Major Adviser: Prof. R.E. Willis.

**Katherine Marie Johnson, Fair
Haven, N.J.**

B.S.H.E. '75, University of Delaware; M.S. '77, University of Minnesota. Major: Food Science. Minor: Supporting Program. Thesis: Effect of Initial Heat Treatment on the Expression of Temperature Sensitivity by Outgrowing Spores of *Bacillus cereus* at Elevated Germination and Growth Temperatures. Major Adviser: Prof. F.F. Busta.

Keith Richard Johnson, Trimont

B.A. magna cum laude '70, B.S. '74, University of Minnesota. Major: Cell and Developmental Biology. Minor: Biochemistry. Thesis: Studies on the Phosphorylation and Heterogeneity of the Major Junctional Protein from Bovine Lens. Major Adviser: Prof. R.G. Johnson.

**Patricia Ann Johnson, Kendrick,
Idaho**

B.S. '71, University of Idaho; M.S. '73, Iowa State University. Major: Home Economics. Minor: Supporting Program. Thesis: Two Types of Dating Relationships: Long Distance and Close Couples. Major Adviser: Prof. P.C. Rosenblatt.

Alan Dana Johnston

B.S. '76, Bates College; M.S. '78, University of Minnesota. Major: Geology. Minor: Supporting Program. Thesis: Mineralogy, Petrology and Geochemistry of Some Unusually Oxidized Rocks from Kauai, Hawaii, and their Entrained Mantle Xenoliths. Major Adviser: Prof. J.H. Stout.

**Diane Viola Jorgensen, Idaho Falls,
Idaho**

B.S.Ch.E. '76, Washington University. Major: Chemical Engineering. Minor: Mathematics. Thesis: Dynamics and Exotic Behavior of a Stirred Tank Reactor. Major Adviser: Prof. Rutherford Aris.

Earl Clark Joseph II, St. Paul

B.S.B. with high distinction '78, University of Minnesota. Major: Business Administration. Minor: Supporting Program. Thesis: A Study of the Differences in Usage of Technological Forecasting Methods in the Strategic Management of Research and Development in High Technology Firms. Major Adviser: Prof. R.E. Willis.

Joseph Kevin Kearney

B.A. summa cum laude '75, M.S.'81, University of Minnesota; M.A.'79, University of Texas. Major: Computer and Information Sciences. Minor: Supporting Program. Thesis: The Estimation of Optical Flow. Major Adviser: Prof. W.B. Thompson.

Thomas H. Kelly, St. Paul

B.A. magna cum laude '78, College of St. Thomas. Major: Psychology. Minor: Supporting Program. Thesis: The Effects of Methadone on the Behavioral Mechanisms of Conditioned Reinforcement and Motivation in the Pigeon. Major Adviser: Prof. T.I. Thompson.

Judith Ann Kennison, Bloomington, Ill.

B.S.'73, M.S.'77, Illinois State University. Major: Education. Minor: Supporting Program. Thesis: Sex-Role Stereotypes and Evaluations of Administrative Performance by Municipal Recreation and Park Administrators. Major Adviser: Prof. J.H. Schultz.

Sam Myo Kim, Chaeju, Korea

B.S.'65, M.S.'70, Kyungpook National University. Major: Computer and Information Sciences. Minor: Supporting Program. Thesis: Characterizations and Computational Complexity of Some Models of Parallel Computation. Major Adviser: Prof. O.H. Ibarra.

Thomas Bernard Klevorn

B.S. with honors '78, M.S.'80, University of Missouri. Major: Agronomy. Minor: Supporting Program. Thesis: Effect of Soil Temperature, Soil Moisture, and Transport System Alteration on Assimilate Transport in Quackgrass (*Agropyron repens* [L.] Beauv.). Major Adviser: Prof. D.L. Wyse.

Thomas Clinton Kosier, Arlington, Tex.

B.S.'75, University of Florida. Major: Plant Physiology. Minor: Supporting Program. Thesis: The Isolation and Biochemical Characterization of Tuberin. Major Adviser: Prof. S.L. Desborough.

Michael A. Kuskowski, Minneapolis

B.S. with distinction '73, University of Wisconsin, Madison. Major: Child Psychology. Minor: Supporting Program. Thesis: Young Infants' Event-Related Potentials (ERPs) to Shape and Contour Density in Two-Dimensional Visual Stimuli. Major Adviser: Prof. P.H. Salapatek.

Kwyro Lee, Korea

B.S.'76, Seoul National University; M.S.E.E.'81, University of Minnesota. Major: Electrical Engineering. Minor: Physics. Thesis: Modulation Doped (Al, Ga)As/GaAs Heterojunction Field Effect Transistor. Major Advisers: Profs. Allen Nussbaum and Michael Shur.

Alfredo Mario Leone, Buenos Aires, Argentina

B.A.'75, University of Buenos Aires; M.A.'82, University of Minnesota. Major: Economics. Minor: Supporting Program. Thesis: Inflation and the Relative Price of Durable and Nondurable Goods in Overlapping Generations Models. Major Adviser: Prof. O.H. Brownlee.

Patricia Rae Lewis, St. Paul

B.A.'68, Beloit College. Major: Zoology. Minor: Supporting Program. Thesis: Amnion and Yolk Sac Permeability as Related to Initiation of Parturition in the Rat. Major Adviser: Prof. W.D. Schmid.

Robert Stephen Littlefield, Moorhead

B.S. cum laude '74, Moorhead State University; M.A.'79, North Dakota State University. Major: Speech-Communication. Minor: Political Science. Thesis: An Analysis of the Persuasion and Coercion Used by the Carter Administration To Promote Human Rights in Argentina, Brazil and Chile. Major Adviser: Prof. W.S. Howell.

Leticia López, San Pedro Sula, Honduras

B.S. with honors '74, New Mexico Institute of Technology; M.A.'76, University of New Mexico. Major: Hispanic Linguistics. Minor: Supporting Program. Thesis: A Sociolinguistic Analysis of /S/ Variation in Honduran Spanish. Major Adviser: Prof. Kathleen Houlihan.

Janis Lull, Cleveland, Ohio

B.A.'67, University of Oregon; M.A.'80, University of Minnesota. Major: English. Minor: Supporting Program. Thesis: Language Behavior and Renaissance Poetry: Studies in Shakespeare, Herbert, and Donne. Major Adviser: Prof. T.S. Clayton.

Richard Laszlo Madarasz, New Brunswick, N.J.

B.S. with high distinction '75, Arizona State University; M.S.'81, University of Minnesota. Major: Computer and Information Sciences. Minor: Supporting Program. Thesis: Object Recognition Using Motion Information. Major Adviser: Prof. W.B. Thompson.

Elias Coutinho Mandala, Malawi

B.Soc.S. with distinction '74, M.A.'77, University of Malawi. Major: History. Minor: Supporting Program. Thesis: Capitalism, Ecology and Society: The Lower Tchiri (Shire) Valley of Malawi, 1860-1960. Major Adviser: Prof. A.F. Isaacman.

Gale C. McLain, San Marino, Calif.

B.A.'70, Stanford University. Major: Educational Psychology. Minor: Supporting Program. Thesis: Outcome, Expectancy and Attributions for Performance by Sixth Graders. Major Advisers: Profs. R.A. Weinberg and Byron Egeland.

Clark Leonard Miller, Jackson,
Mich.

B.A. '71, University of Michigan; M.A. '77, University of Minnesota. Major: History. Minor: Supporting Program. Thesis: "Let Us Die To Make Men Free." Political Terrorism in Postreconstruction Mississippi, 1887-1896. Major Adviser: Prof. G. D. Green.

Mabel Morana, Uruguay

Prof. '76, Instituto de Profesores "Artigas." Major: Spanish. Minor: Supporting Program. Thesis: *Literatura y Cultura Nacional en HispanoAmerica (1910-1940)*. Major Adviser: Prof. Hernan Vidal.

Felipe Guillermo Morande,
Santiago, Chile

Mag. '78. Lic. '78. Ing.Com. '78. Catholic University of Chile; M.A. '81, University of Minnesota. Major: Economics. Minor: Supporting Program. Thesis: *Retail and Wholesale Prices in Chile, International Commodity Arbitrage and Commerce Intermediation Services*. Major Adviser: Prof. A.O. Krueger.

Jerene Doerring Mortenson,
Roseville

B.S. '54, M.S. '73, St. Cloud State University. Major: Educational Psychology. Minor: Supporting Program. Thesis: *Predicting Success in Student Teaching: A Cognitive Developmental Model*. Major Adviser: Prof. N.A. Sprinthall.

Kathleen Mary Mutch, La Crosse,
Wis.

B.S. *summa cum laude* '76, Viterbo College; M.S. '81, University of Minnesota. Major: Computer and Information Sciences. Minor: Supporting Program. Thesis: *Qualitative Spatial Properties of Scenes Using Motion Information*. Major Adviser: Prof. W.B. Thompson.

Prantosh Nag, Calcutta, India

M.S. '64, University of Minnesota. Major: Agricultural and Applied Economics. Minor: Agricultural Education. Thesis: *A Study of Apparent Irrationality in the Production Behavior of Rice Farmers in West Bengal, India: A Case Study*. Major Adviser: Prof. W.L. Peterson.

Amitabh Narain, India

B.Tech. with honors '78, Indian Institute of Technology; M.S. '80, University of Minnesota. Major: Mechanics. Minor: Mathematics. Thesis: *Shearing Deformation of Simple Materials*. Major Adviser: Prof. D.D. Joseph.

Merritt Charles Nequette, St. Paul

B.A. '59, St. John's University; M.A. '73, M.F.A. '78, University of Minnesota. Major: Music. Minor: Classics. Thesis: *Music in the Manuscripts at the Stiftsbibliothek Melk Abbey, Austria*. Major Adviser: Prof. Johannes Riedel.

Mary Teresa Nezworski, Fort
Worth, Tex.

B.A. *magna cum laude* '77, Washington University. Major: Child Psychology. Minor: Supporting Program. Thesis: *Continuity in Adaptation into the Fourth Year: Individual Differences in Curiosity and Exploratory Behavior of Preschool Children*. Major Advisers: Profs. Byron Egeland and L.A. Sroufe.

Dana Noonan

B.A. '66, College of St. Catherine; M.A. '75, M.A. '76, University of Minnesota. Major: Geography. Minor: Supporting Program. Thesis: *Intergenerational Differences in the Social Status and Geographical Mobility of Mexican Americans in the Urban Southwest*. Major Adviser: Prof. J.S. Adams.

Stavros Pavlou, Thessaloniki, Greece

Dipl. '78, National Technical University of Athens. Major: Chemical Engineering. Minor: Supporting Program. Thesis: *Mathematical Modeling of the Dynamics of Protozoan Suspension Feeding*. Major Adviser: Prof. A.G. Fredrickson.

Kenneth Allen Peterson,
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B.M.E. with high distinction '75, University of Minnesota. Major: Metallurgy and Materials Science. Minor: Mechanics. Thesis: *Electron Channelling Studies of Hydrogen Embrittlement and Cleavage Fractures in BCC Metals*. Major Adviser: Prof. W.W. Gerberich.

Mary Catherine Preus, Minneapolis

B.A. *summa cum laude* '63, Luther College; M.A. '64, Harvard University. Major: Classics. Minor: Supporting Program. Thesis: *Eloquence and Ignorance in Augustine's De Natura Et Origine Animae*. Major Adviser: Prof. R.B. Sonkowsky.

JoAnne Wachholz Putnam,
Alexandria, Va.

B.S. with high distinction '69, Colorado State University; M.A. '74, West Virginia University. Major: Educational Psychology. Minor: Supporting Program. Thesis: *The Social Integration of Moderately Handicapped Students Through Cooperative Groups: Influence of Teacher Imposed Structure*. Major Adviser: Prof. J.E. Rynders.

Laura Sue Quakenbush, Littleton,
Colo.

B.S. with distinction '78, Colorado State University; M.S. '80, University of Nebraska. Major: Agronomy. Minor: Plant Physiology. Thesis: *Studies on the Biology and Herbicide Susceptibility of Weedy Nightshades of the Solanum nigrum Complex (Solanum sect. Solanum)*. Major Adviser: Prof. R.N. Andersen.

Gary Stuart Rubin, St. Paul

B.A. summa cum laude '74, Macalester College; B.A.'76, Oxford University. Major: Psychology. Minor: Supporting Program. Thesis: Suppression and Summation in Binocular Pattern Vision. Major Adviser: Prof. G.E. Legge.

Jeffrey Rubin, Brooklyn, N.Y.

B.A. cum laude '73, Brooklyn College; M.A.'76, State University of New York, Plattsburgh. Major: Educational Psychology. Minor: Psychology. Thesis: Some Interpersonal Effects of Employing Eliciting Altruism Versus Guilting During Interpersonal Conflicts. Major Adviser: Prof. W.F. Shaffer.

Martha Garrett Russell, Minneapolis

B.A.'69, University of California, Santa Barbara; M.A.'76, University of Minnesota. Major: Educational Administration. Minor: Home Economics. Thesis: Academic Research Productivity: New Scientists and New Knowledge in a Departmental Economy. Major Adviser: Prof. V.D. Mueller.

Judith Andre Ryan

B.S.N. summa cum laude '58, St. Olaf College. Major: Hospital and Health Care Administration. Minor: Supporting Program. Thesis: Source of Professional Control: A Study of the American Nurses' Association. Major Adviser: Prof. T.J. Litman.

Alberto Sandoval Sánchez, Puerto Rico

B.A. magna cum laude '75, Carroll College. Major: Spanish. Minor: Supporting Program. Thesis: Estructura e Ideología en las Comedias de Juan Ruiz de Alarcón. (Para la determinación de una cronología). Major Adviser: Prof. Nicholas Spadaccini.

Claudia Hirst Satterwhite, Pasadena, Tex.

B.S.'74, University of Texas, Austin. Major: Vocational Education. Minor: Supporting Program. Thesis: The Development and Validation of an Evaluation Instrument for Evaluating Baccalaureate Marketing and Distributive Teacher Education Programs. Major Adviser: Prof. R.D. Ashmun.

Maryan Strathy Schall, Minneapolis

B.A. magna cum laude '51, M.Agr.'75, University of Minnesota. Major: Speech-Communication. Minor: Supporting Program. Thesis: A Focused Communication Rules Approach To Articulating Organization-Cultures: Descriptions and Comparisons. Major Adviser: Prof. D.L. Rarick.

Sheryl M. Schellhaass

B.S.'75, University of Wisconsin, River Falls. Major: Food Science. Minor: Supporting Program. Thesis: Characterization of Extracellular Slime Produced by Bacterial Starter Cultures Used in the Manufacture of Fermented Dairy Products. Major Adviser: Prof. H.A. Morris.

Jane A. Schmidt, Minneapolis

B.A. cum laude '75, Allegheny College; M.A.'77, Ohio State University. Major: Educational Psychology. Minor: Supporting Program. Thesis: The Intellectual Development of Traditionally and Nontraditionally Aged College Students: A Cross Sectional Study with Longitudinal Follow-Up. Major Advisers: Profs. M.L. Davison and C.A. Parker.

Mitchell Brian Sherman, Monsey, N.Y.

B.S.'68, Brooklyn College; M.A.'70, University of Illinois. Major: Psychology. Minor: Supporting Program. Thesis: A Social Psychological Model of the Performance Rating Process. Major Adviser: Prof. M.D. Dunnette.

Joon Yong Shin, Seoul, Korea

B.S.'70, Sogang University; M.B.A.'81, University of Minnesota. Major: Business Administration. Minor: Supporting Program. Thesis: Incomplete Information, Moral Hazard and Hierarchical Structure-Accounting Information System as an Incomplete Monitoring Device in the Context of the Theory of the Firm. Major Adviser: Prof. J.W. Dickhaut.

Robert Michael Siegfried, Brooklyn, N.Y.

B.A.'76, M.S.'78, Columbia University. Major: Metallurgy and Materials Science. Minor: Physics. Thesis: The Reconstruction of Electrical Conductivity Profiles Using Multifrequency Eddy Current Testing. Major Adviser: Prof. W.W. Gerberich.

Bruce Michael Simat, Bovey

B.A. cum laude, University of Minnesota, Duluth; M.S.'77, University of Minnesota. Major: Physiology. Minor: Biochemistry. Thesis: Hepatic Regulation of Total Cytoplasmic Ribonucleic Acid and Messenger Ribonucleic Acid in the Rat: The Roles of Thyroid Hormone and Growth Hormone. Major Adviser: Prof. J.H. Oppenheimer.

Glorian Christine Sorensen, Minneapolis

B.A.'74, M.P.H.'81, University of Minnesota. Major: Sociology. Minor: Supporting Program. Thesis: Gender Differences in the Effects of Employment on Health. Major Adviser: Prof. J.T. Mortimer.

Mehrdad Soumekh

B.E.E. with high distinction '79, University of Minnesota. Major: Electrical Engineering. Minor: Supporting Program. Thesis: Inverse Scattering with Application to Acoustic Tomography. Major Adviser: Prof. Mostafa Kaveh.

Dimitrije Stamenovic, Yugoslavia

Dipl.'77, University of Beograd; M.S.'81, University of Minnesota. Major: Mechanics. Minor: Supporting Program. Thesis: The Constitutive Equation of Lung Parenchyma Based on a Microstructural Model. Major Adviser: Prof. T.A. Wilson.

Melville Yorke Stewart, Columbia Heights

B.A. '58, Gordon College; B.Div. '61, Westminster Theological Seminary; S.T.M. '68, Andover Newton Theological School; M.A. '72, University of Connecticut. Major: Philosophy. Minor: Supporting Program. Thesis: The Greater Good Defense. Major Adviser: Prof. D.B. Terrell.

Rosemary Argent Svoboda, St. Paul

B.A. '68, Manhattanville College of the Sacred Heart; M.A. '70, Columbia University. Major: Art History. Minor: Supporting Program. Thesis: The Illustrations of the Life of St. Omer (Saint-Omer Bibliotheque Municipale, MS.698). Major Adviser: Prof. M.A. Stones.

Bashir Hamid Teirab, En Nahud, Sudan

B.V.S. '66, University of Khartoum; M.S. '77, Kansas State University. Major: Veterinary Microbiology. Minor: Supporting Program. Thesis: Antigenic and Serological Comparison of BVD Virus Isolates. Major Adviser: Prof. J.A. Newman.

Carmencita Tjahjadi, Bandung, Indonesia

Sard. '71, University of Padjadjaran; M.Ag. Dev. '75, State University of Ghens. Major: Food Science. Minor: Supporting Program. Thesis: Isolation and Characterization of Adzuki Bean (*Vigna angularis*) Protein and Starch. Major Adviser: Prof. W.M. Breene.

Paul Henry Tomasek, Grand Forks, N.D.

B.S. magna cum laude '76, University of North Dakota. Major: Microbiology. Minor: Supporting Program. Thesis: Bacterial Catabolism of Xanthone. Major Adviser: Prof. R.L. Crawford.

David Davenport Tukey, State College, Pa.

B.A. '76, B.A. with honors '76, B.A. with highest distinction '77, Pennsylvania State University. Major: Psychology. Minor: Supporting Program. Thesis: Inquiry Through Experimentation: A Psychological Study of Subjects' Methods of Conducting Experiments in a Rule-Learning Task. Major Advisers: Profs. J.J. Jenkins and Eugene Borgida.

Mohamed Amin EWafaey

B.A. '74, University of Cairo; M.A. '78, University of Chicago. Major: Mass Communication. Minor: Supporting Program. Thesis: Political Behavior, Legitimation and Social Control: U.S. Senators, the Mideast and TV News. Major Adviser: Prof. R.E. Carter.

Peter Waksman, Woodbridge, Conn.

B.A. cum laude '75, Boston University. Major: Mathematics. Minor: Supporting Program. Thesis: The Associated Function of a Plane Polygon. Major Adviser: Prof. W.F. Pohl.

Yongjia Wang, Shanghai, China

Dipl. '54, Northeastern Institute of Technology. Major: Geo-Engineering. Minor: Supporting Program. Thesis: Numerical Model for Computing Time-Dependent Displacements and Stresses in Rock Mechanics. Major Adviser: Prof. S.L. Crouch.

Norrie Angel Wilkins, Edina

B.S. Pharm. '76, M.S. '81, University of Minnesota. Major: Social and Administrative Pharmacy. Minor: Supporting Program. Thesis: A Computerized Drug Utilization Review Project: Test of Two Feedback Methods. Major Adviser: Prof. L.C. Gatewood.

Carol Lucille Williams, Pine Island

B.A. '77, University of Iowa. Major: Zoology. Minor: Supporting Program. Thesis: Relationships Between Rhythms of Cercarial Emergence of *Schistosoma mansoni* from *Biomphalaria glabrata* and Rhythmic Activity of the Snail Host. Major Adviser: Prof. D.E. Gilbertson.

Mark Frederick Wiser, Louisville, Ky.

B.A. magna cum laude '78, Franklin College. Major: Cell and Developmental Biology. Minor: Biochemistry. Thesis: Phosphoproteins and Protein Kinases Associated with *Plasmodium berghei* Infected Murine Erythrocytes. Major Adviser: Prof. J.R. Sheppard.

Jeffrey Alvin Witmer, La Crosse, Wis.

B.S. with honors '79, University of Wisconsin, La Crosse. Major: Statistics. Minor: Supporting Program. Thesis: Bayesian Multistage Decision Problems. Major Adviser: Prof. D.A. Berry.

Doctor of Philosophy

MAYO GRADUATE SCHOOL OF MEDICINE

Robert Allen Robinson, Clinton, Mo.

B.A. '76, M.D. '76, University of Missouri. Major: Pathology. Minor: Supporting Program. Thesis: Epidermal Growth Factor Receptors in Chemically Transformed and Nontransformed Cells in Culture. Major Adviser: Prof. H.L. Moses.

Doctor of Philosophy in Physical Medicine and Rehabilitation

Thomas Wagner Findley, Jr.
B.A. '70, Reed College; M.D. '77, Georgetown University. Major: Physical Medicine and Rehabilitation. Minor: Psychology. Thesis: Ambulation and the Adolescent with Myelomeningocele. Major Adviser: Prof. F.J. Kottke.

Master of Architecture

John Harold Blum

B.S. '80, University of Wisconsin, Milwaukee. Major: Architecture. Thesis: School of Commerce, University of Wisconsin. Major Adviser: Prof. R.D. Clemence.

Kim Clair Bretheim, Minneapolis

B.A. '78, St. Olaf College. Major: Architecture. Thesis: A Conference Center/Hotel. Major Adviser: Prof. R.D. Clemence.

Gary Joseph Cabo, Natick, Mass.

B.E.D. '81, Miami University. Major: Architecture. Thesis: Landmark Downtown Redevelopment Site: North Shore Community College. Major Adviser: Prof. R.D. Clemence.

Robert Aiken Cunningham,

Minneapolis

B.S. '77, University of Minnesota. Major: Architecture. Thesis: MARTE (Metropolitan Area Rapid Transit Environment). Major Adviser: Prof. V.L. Michelson.

Richard Webb Dabrus

B.E.S. '80, University of Manitoba. Major: Architecture. Thesis: Winter Olympic Ski Village Development and Issues: Calgary, Alberta, Canada, 1988. Major Adviser: Prof. R.D. Clemence.

Mary H. Fagerson, St. Paul

B.A. '60, Wellesley College. Major: Architecture. Thesis: An Analysis of Forty-Six Homes in the Energy Efficient Housing Demonstration Program. Major Adviser: Prof. R.D. Clemence.

Garry Hai-Tor Jer

B.Arch.E. '77, College of Chinese Culture. Major: Architecture. Thesis: School of Architecture of Chinese Culture University. Major Adviser: Prof. R.D. Clemence.

Stephen Paul Martinson

B.A. magna cum laude '74, Gustavus Adolphus College. Major: Architecture. Thesis: Computer Aided Design: Focus on Housing. Major Adviser: Prof. R.D. Clemence.

David Arthur Packard

B.S.A.S. '75, University of Nebraska. Major: Architecture. Thesis: Rejuvenation of Spirit in the CBD, a New Fontenelle Hotel in Omaha, Nebraska. Major Adviser: Prof. R.D. Clemence.

Timothy G. Quigley, Red Bank, N.J.

B.A. '75, University of Wisconsin, Madison. Major: Architecture. Thesis: Battery Park City: World Financial Center. Major Adviser: Prof. R.D. Clemence.

Dana Speight Reed

B.S. '79, University of Illinois. Major: Architecture. Thesis: U10 W Grant: A Housing Proposal for the Loring Park Development District. Major Adviser: Prof. R.D. Clemence.

Joel W. Rieder, Lampman,

Saskatchewan, Canada

B.E.S. '80, University of Manitoba. Major: Architecture. Thesis: Multi-Family Housing Project for Native Indians in Saskatoon, Saskatchewan. Major Adviser: Prof. R.D. Clemence.

Grace Harlow Robinson

B.S.H.E. '74, University of Georgia; M.Ed. '76, West Georgia College. Major: Architecture. Thesis: Bremer School: Housing Alternatives for the Elderly. Major Adviser: Prof. R.D. Clemence.

Master of Arts

Fadel Ibrahim Abdallah, Jordan

B.A. '68, Alexandria University. Major: Arabic. Minor: Related Fields. Major Adviser: Prof. Anwar Chejne.

Judi Elizabeth Ahonen, Longview,
Wash.

B.A. '76, University of Washington, M. Sp. Path. Audio. '77, University of Washington. Major: Communication Disorders. Minor: Related Fields. Thesis: Extended High-Frequency Sensitivity and Unvoiced Fricative Production Skills of Children with Cleft Palate. Major Adviser: Prof. P.A. Broen.

Livi Chibuike Ajuonuma, Isiekensi,
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B.A. '82, Huntington College. Major: Mass Communication. Minor: Related Fields. Major Adviser: Prof. J.S. Ettema.

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B.A. '75, Tel-Aviv University. Major: Public Affairs. Major Adviser: Prof. D.E. Abrahamson.

Joel Robert Alter, Cedar Falls, Iowa

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Sr. Rhoda Amstutz, Cambridge,
Ohio

B.A. '71, Holy Family College. Major: Elementary Education. Minor: Related Fields. Major Adviser: Prof. R.T. Lambert.

Lawrence Dean Anderson

B.S.B. '81, University of Minnesota. Major: Industrial Relations. Minor: Related Fields. Major Adviser: Prof. J.J. Flagler.

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Patrick George Ashwood,
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B.A. '79, Augsburg College. Major: History. Minor: Related Fields. Major Adviser: Prof. J.K. Munholland.

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B.A. '81, University of Minnesota. Major: History. Minor: Related Fields. Thesis: Private Law in 14th Century Montpellier: The Notarial Register of Guillaume Nogaret. Major Adviser: Prof. K.L. Reyerson.

Steven Douglas Baker, Minneapolis

B.A. cum laude '79, Kalamazoo College. Major: Mass Communication. Minor: Related Fields. Major Adviser: Prof. W.E. Emery.

Elizabeth A. Balow, Goodhue

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Karen Elaine Bauer, Columbia, Mo.

B.S. '79, University of Minnesota. Major: Communication Disorders. Minor: Related Fields. Thesis: The Effects of Peripheral Hearing Loss on Dichotic Listening. Major Adviser: Prof. C.E. Speaks.

Marcia J. Bemmels

B.A. '77, University of Minnesota. Major: Industrial Relations. Minor: Related Fields. Major Adviser: Prof. H.E. Miller.

Bruce Steven Bernstein

B.A. '73, State University of New York, Binghamton; M. U. P. '75, Hunter College. Major: Industrial Relations. Minor: Related Fields. Major Adviser: Prof. George Seltzer.

Janet Ann Brandstetter, Minneapolis

B.M.E. '72, University of Nebraska. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. Martin Snoke.

Susan Carol Brantly, Murrieta,
Calif.

B.A. magna cum laude '80, Radcliffe College. Major: Scandinavian. Minor: Related Fields. Major Adviser: Prof. Paul Houe.

Sigrid Brevik, Moss, Norway

Cand. Mag. '79, Cand. Philol. '82, University of Oslo. Major: English. Minor: Related Fields. Major Adviser: Prof. W.A. Madden.

Serena Marie Brown, White Bear
Lake

B.S. '73, University of California, Davis. Major: Home Economics Education. Minor: Related Fields. Major Adviser: Prof. M.M. Rossmann.

Pamela Irene Brunkow-Berg

B.A. '73, Winona State College; B.S. with distinction '76, University of Minnesota. Major: Music Education. Minor: Related Fields. Major Adviser: Prof. J.A. Jellison.

Michele Lissa Calvit, Minneapolis

B.A. '77, Louisiana State University; B.A. '80, University of Minnesota. Major: Spanish. Minor: Hispanic Linguistics. Thesis: Del Indigenismo a la Novela Social Haitiana: Los Casos de Roumain y Alexis. Major Adviser: Prof. Ileana Rodríguez.

Jane Lamm Carroll, Minneapolis

B.A. '80, College of St. Catherine. Major: History. Minor: Related Fields. Major Adviser: Prof. P.I. Murphy.

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B.A. summa cum laude '78, University of Minnesota. Major: Art History. Minor: Related Fields. Major Adviser: Prof. Melvin Waldfogel.

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B.A. '80, National Cheng-Chi University. Major: Mass Communication. Minor: Related Fields. Major Adviser: Prof. W.E. Emery.

Brenda Joyce Christianson, Belle Fourche, S.D.

B.A. summa cum laude '74, Concordia College. Major: Home Economics. Minor: Related Fields. Major Adviser: Prof. D.H. Olson.

Kyung Sook Chung, Seoul, Korea

B.A. '74, Ewha Women's University. Major: Home Economics. Minor: Related Fields. Major Adviser: Prof. E.D. Larkin.

Jo-Anne Evans Coleman, Indianola, Miss.

B.A. '77, University of Southwestern Louisiana. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. D.J. Mercaldo.

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B.S. with high distinction '71, University of Minnesota. Major: Library Science. Minor: Related Fields. Major Adviser: Prof. J.H. Leigh.

Marsha J. Connor, New Orleans, La.

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B.S. '66, University of Minnesota. Major: Art Education. Minor: Related Fields. Major Adviser: Prof. M.K. DiBlasio.

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Robert Raul De La Vega, New York, N.Y.

B.A. '75, Columbia University. Major: Mass Communication. Minor: Related Fields. Major Adviser: Prof. W.E. Emery.

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Mark Anthony Del Vecchio, St. Paul

B.A. '81, College of St. Thomas. Major: Industrial Relations. Minor: Related Fields. Major Adviser: Prof. P.L. Schumann.

Holly Jo Dodds, Minnetonka

B.S. '80, University of Minnesota. Major: Communication Disorders. Minor: Related Fields. Thesis: Evaluation of a New Electrode for the Measurement of the Human Auditory-Evoked Brainstem Response. Major Adviser: Prof. J.L. Yanz.

Christine Mary Doty, Minneapolis

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Joan Mayer Duke, Lakewood, Ohio

B.S. '63, Capital University; M.A. '65, College of St. Thomas. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. L.S. Hansen.

Georgianna B. Dunn, St. Paul

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Cynthia Ann Elliott, Minneapolis

B.A. '74, University of Minnesota. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. D.G. Force, Jr.

Nancy Kay Erickson, Minneapolis

B.S. '79, Moorhead State University. Major: French. Minor: Related Fields. Thesis: Au Fil Du Cordeau Brisure de l'écriture: L'Épître de Berquin de Clement Marot. Major Adviser: Prof. T.C. Conley.

Colleen Ormberg Faber, Deephaven

B.S. with honors '73, College of St. Scholastica. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. J.E. Rynders.

Sharon Kay Fodness, New Ulm

B.A. '78, University of Minnesota. Major: Anthropology. Minor: Related Fields. Thesis: SAMI Ethnicity and Political Mobilization. Major Adviser: Prof. R.E. Prell.

Rose Ann Foreman, St. Paul

B.A. '72, University of Minnesota. Major: Library Science. Minor: Related Fields. Major Adviser: Prof. J.H. Leigh.

Kathleen Mary Franey, White Bear Lake

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Virginia M. Gadbois, St. Cloud

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B.A. magna cum laude '63, Hamline University; M.A. '65, University of Minnesota. Major: Education. Minor: Related Fields. Major Adviser: Prof. A.L. Raygor.

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**Judith Anne Heinowski, New
Brighton**

B.S. '63, Michigan State University. Major: Home Economics Education. Minor: Related Fields. Major Adviser: Prof. M.M. Rossmann.

Michael Alfred Hobson

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B.A. '79, University of Minnesota. Major: American Studies. Major Adviser: Prof. M.Q. Sibley.

Michael Arthur Holmgren, Blaine

B.S. '72, University of Minnesota. Major: Elementary Education. Minor: Related Fields. Major Adviser: Prof. R.T. Lambert.

Mary L. Honstead

B.A. '76, Iowa State University. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. M.L. Snoke.

**Daniel Matthews Hooley,
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B.A. '76, University of Minnesota. Major: Latin. Minor: Related Fields. Major Adviser: Prof. J.F. Miller.

Emilio Huerta, Pamplona, Spain

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John Gerard Jarvis, Minneapolis

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Michele Elena Jiménez, Duluth

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**Marlene Susan Johnshoy, Sioux
Falls, S.D.**

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Linda Kay Johnson

B.A. '72, B.Math. with distinction '75, M.A. '77, M.A. '79, Ph.D. '82, University of Minnesota. Major: Religious Studies. Minor: Related Fields. Major Adviser: Prof. R.W. Ross.

**Wendy Jean Johnson, Watertown,
S.D.**

B.A. summa cum laude '81, Augustana College. Major: Public Affairs. Major Adviser: Prof. J.E. Brandl.

J. Steven Jungbauer, Cedar

B.A. '81, Hamline University. Major: Physical Education. Minor: Related Fields. Thesis: The Effect of High Intensity, Low Duration Training on Maximal Oxygen Uptake in College Students. Major Adviser: Prof. J.F. Alexander.

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B.A. '71, University of Chicago; J.D. '75, Washington University. Major: Business Taxation. Major Adviser: Prof. F.R. Jacobs.

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B.A. with honor '74, J.D. cum laude '78, Hamline University. Major: Business Taxation. Major Adviser: Prof. F.R. Jacobs.

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B.A. magna cum laude '74, University of Minnesota. Major: Business Taxation. Major Adviser: Prof. F.R. Jacobs.

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B.S.B. '80, University of Minnesota. Major: Business Taxation. Major Adviser: Prof. F.R. Jacobs.

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B.B.A. '74, University of Wisconsin, Whitewater. Major: Business Taxation. Major Adviser: Prof. F.R. Jacobs.

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B.A. '71, Southeast State University. Major: Business Taxation. Major Adviser: Prof. F.R. Jacobs.

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B.A. '70, Macalester College. Major: Business Taxation. Major Adviser: Prof. F.R. Jacobs.

Master of Fine Arts

Teresa Spencer Barker, Little
Canada
B.A. '79, Concordia Teachers College. Major: Theatre Arts. Minor: Related Fields. Major Adviser: Prof. H.W. Balk.

Robert Leroy Cochran III
B.F.A. '74, University of Nebraska. Major: Studio Arts. Minor: Related Fields. Major Adviser: Prof. David Feinberg.

Thomas John Durham
B.A. '75, College of Charleston. Major: Studio Arts. Minor: Related Fields. Major Adviser: Prof. W.E. Potratz.

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B.A. summa cum laude '73, Tufts University. Major: Theatre Arts. Minor: Related Fields. Major Adviser: Prof. R.D. Moulton.

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B.A. cum laude '80, Louisiana State University. Major: Theatre Arts. Minor: Related Fields. Major Adviser: Prof. B.R. McIntyre.

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B.M. magna cum laude '78, College of Notre Dame. Major: Music. Minor: Related Fields. Major Adviser: Prof. P.W. Freed.

Dana Eric Larson
B.A. '78, Eastern Washington State College. Major: Studio Arts. Minor: Related Fields. Major Adviser: Prof. Warren MacKenzie.

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B.A. '81, Knox College. Major: Theatre Arts. Minor: Related Fields. Major Adviser: Prof. R.D. Moulton.

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B.A. '79, University of Minnesota. Major: Studio Arts. Minor: Art History. Major Adviser: Prof. J.V. Henkel.

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B.A. '77, Clarke College. Major: Theatre Arts. Minor: Related Fields. Major Adviser: Prof. C.L. Brockman.

Andrena Marie Wingate
B.F.A. '80, Kansas City Art Institution. Major: Studio Arts. Minor: Art History. Major Adviser: Prof. C.C. Hoard.

Master of Mechanical Engineering

Charles Joseph Kniebel,
Bloomington

B.A.E.M.'72, University of Minnesota. Major:
Mechanical Engineering. Minor: Related Fields.
Project: Variable Volume Control of Fans. Major
Adviser: Prof. T.E. Murphy.

Master of Music

Thomas M. George, New Brighton
B.F.A. summa cum laude '77, University of Minne-
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viser: Prof. B.D. Weiser.

Winston Phillip Peterson, St. Paul
B.A.'80, University of Minnesota. Major: Music.
Major Adviser: Prof. T.S. Lancaster.

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B.M.'80, Boston University. Major: Music. Major
Adviser: Prof. Johannes Riedel.

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B.M. magna cum laude '80, St. Norbert College.
Major: Music. Major Adviser: Prof. Clifton Ware.

Master of Planning

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B.A.'79, University of Minnesota. Major: Plan-
ning. Major Adviser: Prof. R.C. Einsweiler.

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Iowa. Major: Planning. Major Adviser: Prof. M.E.
Dewar.

Master of Science

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B.S.'80, University of Minnesota, Morris. Major:
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Prof. H.J. Oskam.

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B.S.N. magna cum laude '76, University of Wis-
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lated Fields. Major Adviser: Prof. A.M. Sime.

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B.E.'78, Saitama University. Major: Operations
Research. Minor: Related Fields. Major Adviser:
Prof. P.J. Starr.

Mahmoud Azar
B.S.'73, Pahlavi University. Major: Plant Pathol-
ogy. Minor: Related Fields. Major Adviser: Prof.
E.E. Bantari.

Aloysius Ureta Baes, Los Baños,
Laguna, Philippines
B.S.Agr.'69, University of the Philippines, Los
Baños. Major: Soil Science. Minor: Related
Fields. Thesis: Exchange of Divalent Cations in an
Acid-Washed Peat and a Polycarboxylate Resin.
Major Adviser: Prof. P.R. Bloom.

Edward Lee Barchenger
B.A.B.A.'81, University of Minnesota. Major: Ag-
ricultural Economics. Minor: Related Fields. Ma-
jor Adviser: Prof. R.P. Dahl.

Dora B. Barlaz, Edison, N.J.
B.A.'80, Rutgers State University. Major: Geol-
ogy. Minor: Related Fields. Thesis: Sedimentation
in the Duluth-Superior Harbor, Lake Superior.
Major Adviser: Prof. T.C. Johnson.

Loic Barral, Jeumont, France
Dipl.'81, Ecole Nationale Supérieure d'Electro-
technique et d'Hydraulique. Major: Fluid Me-
chanics. Minor: Related Fields. Thesis: A Critical
Examination of the Influence of Dissolved Gas on
the Cavitation Process in Turbulent Shear Flows.
Major Adviser: Prof. R.E. Arndt.

Debra Wunn Bode, Estherville,
Iowa
B.S.N. with special honors/highest distinction '74,
University of Iowa. Major: Nursing. Minor: Re-
lated Fields. Major Adviser: Prof. A.M. Sime.

Teresa Anne Boese
B.S.N.'78, University of Iowa. Major: Nursing.
Minor: Related Fields. Major Adviser: Prof. Kath-
leen Sodergren.

Timothy Michael Bourett, Ashland,
Mass.
B.S. with high distinction '80, University of Maine.
Major: Botany. Minor: Related Fields. Thesis: A
Light and Electron Microscopic Study of Mitosis in
the Basidiomycete *Helicobasidium mompa*. Major
Adviser: Prof. D.J. McLaughlin.

Suzanne Elaine Braun, Minneapolis
B.A. magna cum laude '77, California State College, Stanislaus. Major: Ecology. Minor: Related Fields. Thesis: Home Range and Activity of the Giant Kangaroo Rat, *Dipodomys ingens*. Major Adviser: Prof. E.C. Birney.

Judy Bender Brink, Minneapolis
B.S. magna cum laude '79, Augsburg College. Major: Nursing. Minor: Educational Psychology. Major Adviser: Prof. V.C. Gordon.

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Duluth
B.S.'80, University of Minnesota. Major: Forestry. Minor: Related Fields. Major Adviser: Prof. A.A. Alm.

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B.S.'80, University of Minnesota. Major: Biochemistry. Minor: Related Fields. Thesis: Vitamin C Synthesis in Insects. Major Adviser: Prof. Robert Jenness.

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B.S.'75, South Dakota State University. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. E.E. Mansfield.

Pornsak Chitphakdithai
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Cynthia Kay Christensen,
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B.S.'76, University of Iowa. Major: Dentistry. Minor: Related Fields. Thesis: Plaque pH Changes in Children Following Sucrose Rinsing. Major Adviser: Prof. L.B. Messer.

Christopher Gerard Dewey,
Janesville, Wis.
B.A.'78, Cornell College. Major: Chemistry. Minor: Related Fields. Thesis: The Synthesis and Reactivity with Hydrohalic Acids of the Group Five Hexacarbonyl Metallates $(M[CO]_6)_n$, (M=V,Nb,Ta). Major Adviser: Prof. J.E. Ellis.

Jirawan Somboon Dharmhibhit
B.S.'76, D.D.S.'78, Chiangmai University. Major: Dentistry. Minor: Related Fields. Thesis: The Unlabelled Antibody Enzyme Method Studies Utilizing Giant Cell Lesion of the Jaw with Lysozyme and Alpha-1-Antitrypsin. Major Adviser: Prof. R.A. Vickers.

George R. Dohmann, N.Y.
B.S.'75, Manhattan College. Major: Chemistry. Minor: Related Fields. Major Adviser: Prof. Edward Leete.

Jesus Perez Fernandez
Ing.Agr.'76, Universidad Nacional de la Pampa. Major: Plant Pathology. Minor: Plant Breeding. Thesis: Developing Methods for Screening Alfalfa Plants for Resistance to Crown Rot Complex. Major Adviser: Prof. R.D. Wilcoxson.

Timothy Charles Foley, Ellsworth,
Wis.
B.S.'81, University of Wisconsin, River Falls. Major: Plant Breeding. Minor: Related Fields. Thesis: Agronomic Performance of Related Determinate and Indeterminate Soybean Lines. Major Adviser: Prof. J.H. Orf.

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Lic. '80, University of Lisbon. Major: Mathematics. Minor: Related Fields. Major Adviser: Prof. D.S. Kinderlehrer.

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B.S.N. magna cum laude '79, Loyola University. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.S. Rode.

Rodney R. Greder, Dow City, Iowa
B.S. with distinction '81, Iowa State University. Major: Plant Breeding. Minor: Related Fields. Thesis: Heritabilities and Association of Nodule Mass and Recovery of Rhizobium Japonicum Strain 110 in Soybeans. Major Adviser: Prof. J.H. Orf.

Brian Desmond Grogan, San
Francisco, Calif.
B.A.'80, University of California, Berkeley. Major: Laboratory Medicine. Minor: Pathobiology. Thesis: Biochemical Assessment of Diabetes and Alcoholism. Major Adviser: Prof. B.E. Hedlund.

Shari Christine Grote, St. Paul
B.A.'75, College of St. Catherine. Major: Public Health. Minor: Related Fields. Major Adviser: Prof. E.C. Pflug.

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B.A.'77, Gustavus Adolphus College. Major: Public Health. Minor: Related Fields. Major Adviser: Prof. E.C. Pflug.

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B.S.'75, College of St. Catherine. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.A. Corcoran.

Paul James Hanson, St. Paul
B.A. summa cum laude '81, St. Cloud State University. Major: Plant Physiology. Minor: Related Fields. Thesis: Apoplastic Water Flux Through Root Systems of *Pinus resinosa* Ait. Seedlings. Major Adviser: Prof. E.I. Sucoff.

David George Heath, Fort Wayne,
Ind.

B.S. Microbiol. '79, Indiana University. Major: Medical Microbiology. Minor: Related Fields. Major Adviser: Prof. B.H. Gray.

Shelly Anne Hendrickson, St. Paul

B.S. with distinction '80, Pennsylvania State University. Major: Agricultural and Applied Economics. Minor: Related Fields. Major Adviser: Prof. J. D. Kinsey.

Janis Lou Frikke Hollenbeck, St.
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B.S. '65, Macalester College. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.S. Rode.

Lawrence Dean Jacobson

B.A. '81, University of Colorado. Major: Fisheries. Minor: Genetics. Thesis: Genetic Variation Among Sea Lamprey (*Petromyzon marinus*) Ammocoetes from Lake Michigan and Lake Huron. I. Variation Within and Among Drainages and Variation Among Yearclasses. II. Population Structure. Major Adviser: Prof. G.R. Spangler.

Steven William James, St. Paul

B.A. magna cum laude '80, Gettysburg College. Major: Botany. Minor: Plant Physiology. Thesis: Physiology of Fruitbody Development and Genetics of Sexuality and Incompatibility in *Clavicornia pyxidata* (FR.) Doty. Major Adviser: Prof. D.J. McLaughlin.

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B.S. '76, University of Minnesota. Major: Social and Administrative Pharmacy. Minor: Related Fields. Major Adviser: Prof. L.C. Weaver.

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Monica Ann Jungbluth, Bloomington

B.A. '69, B.S. with distinction '75, University of Minnesota. Major: Dentistry. Minor: Related Fields. Thesis: Factors Influencing Pedodontic Teaching Patient Supply and Demand for Dental Care in a University Dental School. Major Adviser: Prof. L.B. Messer.

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B.S. Agr. '76, Seoul National University. Major: Agricultural and Applied Economics. Minor: Related Fields. Major Adviser: Prof. D.E. Welsh.

Elizabeth Ann Kind, Minnetonka

B.A. '80, University of Minnesota. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.R. Edwardson.

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B.A. '54, Lawrence University. Major: Statistics. Minor: Related Fields. Major Adviser: Prof. Christopher Bingham.

Eric Vernon Level

B.A. '76, Pomona College. Major: Mathematics. Minor: Related Fields. Major Adviser: Prof. Albert Marden.

Nicholas Jay Levering, Piqua, Ohio

B.S. cum laude '72, University of Cincinnati. Major: Dentistry. Minor: Educational Administration. Thesis: Quality Assurance of Amalgam Restorations in Posterior Primary Teeth. Major Adviser: Prof. M.J. Till.

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B.S. with honors '74, University of Illinois, Chicago Circle; B.S. with honors '77, D.V.M. with honors '79, University of Illinois. Major: Veterinary Surgery, Radiology, and Anesthesiology. Minor: Related Fields. Major Adviser: Prof. D.D. Caywood.

Barbara Gail Magnuson, Brookings,
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B.S.N. magna cum laude '82, Mankato State University. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. E.C. Egan.

Joanne Elliott Mair, Rochester

B.S. with distinction '60, M.Ed. '62, University of Minnesota. Major: Nursing. Minor: Related Fields. Thesis: The Influence of Faculty Discussions and a Research Course on Attitudes of Students Toward Nursing Research. Major Adviser: Prof. F.E. King.

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D.D.S.'79, Marquette University. Major: Dentistry. Minor: Related Fields. Thesis: Evaluation of Microleakage Performance of a New Dentinal Adhesive. Major Adviser: Prof. W.H. Douglas.

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B.A. with highest honors '79, Princeton University. Major: Geology. Minor: Civil Engineering. Thesis: A Study of Subsurface Water Flow in a Southeastern Minnesota Karst Drainage Basin. Major Adviser: Prof. E.C. Alexander.

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B.S. with honors '80, Denison University. Major: Ecology. Minor: Related Fields. Thesis: Inhibition of Macrophyte Growth by Phytoplankton. Major Adviser: Prof. Joseph Shapiro.

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B.A.'72, M.A.Ed.'77, Washington University; D.M.D.'80, Southern Illinois University, Edwardsville. Major: Dentistry. Minor: Related Fields. Thesis: A Comparative Immunofluorescence Study of Abnormal Binding of Selected Serum Proteins to Basement Membrane of Gingiva, Parotid Gland, Thyroid, Kidney and Pancreas in Diabetes Mellitus. Major Adviser: Prof. J.J. Sauk, Jr.

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B.A.'69, University of Iowa. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. K.C. Dineen.

Kenneth Edward Nietering, Grand Rapids, Mich.

B.A. cum laude '79, Western Michigan University. Major: Chemistry. Minor: Related Fields. Thesis: The Morphology of Polymers, Oxides, and Surfaces. Major Adviser: Prof. W.G. Miller.

Caroll Marie Niewolny, Eau Claire, Wis.

B.S.N. cum laude '73, University of Wisconsin, Eau Claire. Major: Nursing. Minor: Related Fields. Thesis: Predicting Clients' Perceptions of Empathy. Major Adviser: Prof. S.A. Corcoran.

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B.S. with distinction '79, University of Minnesota. Major: Forestry. Minor: Related Fields. Major Adviser: Prof. A.A. Alm.

Nora Mary O'Brien, Shanagarry, Ireland

B.S.Dy. with first class honors '81, National University of Ireland. Major: Nutrition. Minor: Related Fields. Thesis: Effects of High Fat Feeding and Iron Deficiency on the Catalase Activity in Rat Skeletal and Cardiac Muscle. Major Adviser: Prof. P.B. Swan.

Mary Harris Olson, Hillsboro, Wis.

B.S.N. magna cum laude '81, University of Dubuque. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.R. Edwardson.

Steven Ray Opseth, Minneapolis

B.S.'81, University of Minnesota. Major: Forestry. Minor: Related Fields. Major Adviser: Prof. M.P. Meyer.

Michael Hale Pauly, Lake Oswego, Ore.

B.A.'75, Lewis and Clark College; B.S. with honors '80, Oregon State University. Major: Plant Breeding. Minor: Related Fields. Thesis: Evaluation of a Selection System for *Pseudomonas syringae* Pathotoxin Resistance in Wheat Tissue Culture. Major Adviser: Prof. B.G. Gengenbach.

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B.S.'77, College of St. Benedict. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.S. Rode.

Roberto Luis Pozzo

Ing.Quim.'72, Universidad Nacional del Litoral. Major: Mineral Engineering. Minor: Related Fields. Thesis: Electro-Leaching of Copper Nickel Sulfide Concentrates. Major Adviser: Prof. Iwao Iwasaki.

Keith A. Raisanen, Cokato

B.S. with distinction '76, University of Minnesota. Major: Agronomy. Minor: Related Fields. Major Adviser: Prof. E.A. Oelke.

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Adviser: Prof. S.R. Edwardson.

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Ontario, Canada
B.A.'80, Franklin and Marshall College. Major:
Nursing. Minor: Related Fields. Thesis: Depression
Gender and Physical Performance Differential in
an Aging Jewish Population. Major Adviser:
Prof. E.C. Egan.

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B.A.'73, University of Minnesota, Duluth. Major:
Horticulture. Minor: Related Fields. Thesis: Management
of Native Cowbush Blueberry for Recreational
Picking in Minnesota. Major Adviser: Prof.
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B.A.'75, Augsburg College. Major: Computer and
Information Sciences. Minor: Electrical Engineering.
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B.S. cum laude '77, Rensselaer Polytechnic Institute.
Major: Computer and Information Sciences.
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Munro.

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B.S.'80, South Dakota State University. Major:
Horticulture. Minor: Plant Breeding. Thesis: Terbacil
Tolerance and Variance in Strawberries. Major
Adviser: Prof. F.I. Lauer.

Lisa Gail Soldat
B.Intl.St.'80, School of International Training. Major:
Genetics. Minor: Cell and Developmental
Biology. Thesis: Chromosomal Aberrations Associated
with Predisposition and Neoplastic Transformation
for Human Renal Cell Carcinoma. Major
Adviser: Prof. N.N. Wang.

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B.A. summa cum laude '79, Washington State
University. Major: Mathematics. Minor: Related
Fields. Major Adviser: Prof. Walter Littman.

Constance Marie Strei, Ortonville
B.S.N.'80, University of Minnesota. Major: Nursing.
Minor: Related Fields. Thesis: A Study of
Knowledge About Recovery in Myocardial Infarction
Patients About To Be Discharged from the
Hospital and Their Uncertainty in Illness. Major
Adviser: Prof. A.M. Sime.

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B.S.Pharm.'73, Taipei Medical College. Major:
Pharmaceutics. Minor: Related Fields. Major
Adviser: Prof. R.J. Sawchuk.

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B.S.'75, South Dakota State University. Major:
Hospital Pharmacy. Minor: Related Fields. Major
Adviser: Prof. R.L. Broekemeier.

Margaret Celia Thomson, West
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B.A.'73, Wellesley College. Major: Ancient Studies.
Major Adviser: Prof. G.R. Rapp, Jr.

Van-Mai T. Tran
B.A.'77, Macalester College. Major: Microbiology.
Minor: Related Fields. Thesis: Examination of
Lectin Binding and Motility in *Rhizobium japonicum*
as Attributes of Competition for Nodulation Sites
of the Soybean. Major Adviser: Prof. E.L.
Schmidt.

Juan Lee Turner, Minneapolis
B.S.N. with distinction '75, University of Minnesota.
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Anne Leerssen Tweed, White
Ridge, Colo.
B.A.'73, Colorado College. Major: Botany. Minor:
Related Fields. Major Adviser: Prof. Thomas
Morley.

Wallace Bruce Wadd, Woodbury
B.S.'69, University of Minnesota. Major: Hospital
Pharmacy. Minor: Related Fields. Major Adviser:
Prof. H.F. Kabat.

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B.S.'81, McGill University. Major: Forestry. Minor:
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B.A.'77, Drake University. Major: Forestry. Minor:
Related Fields. Major Adviser: Prof. A.A.
Alm.

James Milton Weeks, Jr., Monrovia,
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B.S. cum laude '75, University of Liberia. Major:
Physics. Minor: Related Fields. Major Adviser:
Prof. Morton Hamermesh.

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Adviser: Prof. A.M. Sime.

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B.A.'76, St. Cloud State University. Major: Statistics.
Minor: Related Fields. Major Adviser: Prof.
Sanford Weisberg.

Scott Edward Williams
B.S.'81, Purdue University. Major: Plant Breeding.
Minor: Related Fields. Thesis: Utilizing Yield
Components To Breed for High Yield in Semidwarf
Barley, *Hordeum Vulgare* L. Major Adviser: Prof.
D.C. Rasmusson.

Teresa Watson Wolfe, Omaha, Neb.
B.S.'78, University of Nebraska, Lincoln. Major:
Food Science. Minor: Related Fields. Thesis: Genetic
Analysis of Lactose Metabolism in *Streptococcus
lactis* C2. Major Adviser: Prof. L. L.
McKay.

Xiaolan Wu, Changchun, Taiwan
Major: Metallurgy and Materials Science. Minor:
Related Fields. Thesis: An In-Situ Technique for
Study of Passive Films. Major Adviser: Prof. R.A.
Oriani.

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Minor: Related Fields. Major Adviser: Prof.
D.K. Kjervik.

Kenneth Jacob Zucker, Burnsville
B.A.'70, Northeastern University; D.D.S.'74,
Georgetown University. Major: Dentistry. Minor:
Related Fields. Thesis: Microdensitometric Analysis
of Three Gutta-Percha Root Filling Techniques
Correlated with Volumetric and Linear Leakage
Studies. Major Adviser: Prof. J.R. Jensen.

Master of Science

UNIVERSITY OF MINNESOTA, DULUTH

David John Herzog
B.A.'80, Carleton College. Major: Chemistry. Minor:
Related Fields. Thesis: Liquid Chromatography
and Electrochemical Detection of Danyslated
Amino Acids. Major Adviser: Prof. D.P. Poe.

Master of Science in Aerospace Engineering

Yew Kow Chook, Kampar, Perak,
Malaysia
B.S.'81, University of Manchester. Major: Aerospace
Engineering. Minor: Related Fields. Major
Adviser: Prof. Eugene Stolarik.

Hyun Jin Kim, Korea
B.S.'77, Seoul National University. Major: Aerospace
Engineering. Minor: Related Fields. Thesis:
Sound Sources Distributions in Excited and Unexcited
Turbulent Jets. Major Adviser: Prof. R.E.
Arndt.

Master of Science in Anesthesiology

Kumar Girdharidas Belani,
Bangalore, India
M.B.B.S.'76, Bangalore University. Major: Anesthesiology.
Minor: Pharmacology. Thesis: Demonstration of Systemic,
Cardiac, Hemodynamic Metabolic and Oxygenation
Alterations During Acute Graded and Fatal Hemorrhagic
Hypotension and Following Volume Restoration with
Ringer's Lactate or 5% Plasma Protein Fraction. Major
Adviser: Prof. J.C. Liao.

Master of Science in Chemical Engineering

John Joseph Crump, Houston, Tex.
B.A.'72, S.B. cum laude '74, Harvard College.
Major: Chemical Engineering. Minor: Related
Fields. Thesis: The Role of Mathematical Model-
ing in Process Engineering; Two Examples. Major
Adviser: Prof. George Stephanopoulos.

**Stevin Henry Gehrke, Brookings,
S.D.**
B.S.Ch.E.'80, Kansas State University. Major:
Chemical Engineering. Minor: Chemistry. Thesis:
Diffusion Paths in Ternary Multiphase Systems:
Their Relations to Liquid Crystal Formation and
Other Solubilization Phenomena. Major Adviser:
Prof. E.L. Cussler.

Master of Science in Civil Engineering

Samuel Bayman, Minneapolis
B.C.E. with distinction '81, University of Minne-
sota. Major: Civil Engineering. Minor: Related
Fields. Major Adviser: Prof. L.E. Goodman.

**Nicolas Pestano Cruz, Quezon City,
Philippines**
B.S.M.E.'76, University of the Philippines. Major:
Civil Engineering. Minor: Related Fields. Major
Adviser: Prof. C.C. Song.

**Nancy Helen Pelt-Lyche,
Milwaukee, Wis.**
B.S.'78, University of Wisconsin, Green Bay. Ma-
jor: Civil Engineering. Minor: Chemical Engineer-
ing. Thesis: The Estimation of the Biodegradable
Organic Loading in Surface Waters and Waste
Effluents with the Aid of Ultraviolet Spectroscopy
and Total Organic Carbon Measurements. Major
Adviser: Prof. W.J. Maier.

Basile-Jean Spirakos, Thiva, Greece
Dipl.'81, Aristotelian University of Thessalonika.
Major: Civil Engineering. Minor: Related Fields.
Major Adviser: Prof. Panos Michalopoulos.

Joel William Toso, Wolf Point, Mont.
B.C.E. with high distinction '81, University of
Minnesota. Major: Civil Engineering. Minor: Re-
lated Fields. Major Adviser: Prof. C.E. Bowers.

Thomas John VanLent
B.S.'80, B.A.'80, South Dakota State University.
Major: Civil Engineering. Minor: Related Fields.
Thesis: Modeling of Finite Canals Using Isolated
Singularities. Major Adviser: Prof. O.D. Strack.

Constantine Xykis, Athens, Greece
B.C.E.'81, University of Minnesota. Major: Civil
Engineering. Minor: Related Fields. Major Ad-
viser: Prof. D.E. Beskos.

Master of Science in Electrical Engineering

Michael Peter Chaplin
B.S.'81, B.S.'81, Massachusetts Institute of Tech-
nology. Major: Electrical Engineering. Minor: Re-
lated Fields. Major Adviser: Prof. R.K. Mueller.

**Eric Teh-Chung Choh, Taipei,
Taiwan**
B.S.'76, American University; B.S.E.E.'77, Uni-
versity of Maryland. Major: Electrical Engineer-
ing. Minor: Physics. Major Adviser: Prof. A.A.
Tuszynski.

Steven D. Gunderson, St. Anthony
B.E.E. with distinction '81, University of Minne-
sota. Major: Electrical Engineering. Minor: Com-
puter and Information Sciences. Major Adviser:
Prof. L.L. Kinney.

**David Valdemar Hansen,
Minneapolis**
B.E.E. with distinction '78, University of Minne-
sota. Major: Electrical Engineering. Minor: Re-
lated Fields. Major Adviser: Prof. J.E. Holte.

Robert Edward Higashi, Minnetonka
B.Phys.'80, B.S. Astrophys. '80, University of Min-
nesota. Major: Electrical Engineering. Minor:
Physics. Major Adviser: Prof. W.P. Robbins.

**Kenneth Paul Hoyme, Golden
Valley**
B.E.E. with distinction '79, University of Minne-
sota. Major: Electrical Engineering. Minor: Com-
puter and Information Sciences. Major Adviser:
Prof. R.Y. Kain.

Ho Young Lee, Korea
B.E.'77, Yonsei University. Major: Electrical En-
gineering. Minor: Related Fields. Major Adviser:
Prof. Mostafa Kaveh.

Kang Woo Lee
B.S.E.'76, Seoul National University. Major: Elec-
trical Engineering. Minor: Related Fields. Major
Adviser: Prof. Michael Shur.

Mark Thomas Meyer, Columbia Heights
B.E.E. with high distinction '81, University of Minnesota. Major: Electrical Engineering. Minor: Related Fields. Thesis: Electron Transport in Gallium Arsenide. Major Adviser: Prof. G.Y. Robinson.

Antonio Manuel Pascoal, Figueira Da Foz, Portugal
Lic. '75, Universidade Tecnica de Lisboa. Major: Electrical Engineering. Minor: Related Fields. Major Adviser: Prof. E.B. Lee.

David E. Tetzlaff, Minneapolis
B.E.E. with distinction '76, University of Minnesota. Major: Electrical Engineering. Minor: Related Fields. Major Adviser: Prof. A.A. Tuszynski.

Master of Science in Industrial Engineering

Farzad Mahmoodi, Tehran, Iran
B.M.E. '82, University of Minnesota. Major: Industrial Engineering. Minor: Business Administration. Major Adviser: Prof. T.O. Kvalseth.

Michael Mayo Stuebner-Holt, Minneapolis
B.S. with high distinction '74, University of Minnesota. Major: Industrial Engineering. Minor: Related Fields. Major Adviser: Prof. J.S. White.

Master of Science in Mechanical Engineering

Joan Elizabeth Bechtold, Midland, Mich.
B.S. with honor '79, Michigan State University. Major: Mechanical Engineering. Minor: Computer and Information Sciences. Thesis: Three-Dimensional Laser Scanning Position Measurement System with Application to Gait Analysis and Robotics. Major Adviser: Prof. Max Donath.

Liangshi Ding, Taiwan
Dipl. '88, Qinghua University. Major: Mechanical Engineering. Minor: Related Fields. Major Adviser: Prof. J.W. Ramsey.

Ching-ping Fang
Dipl. '68, Tsinghua University. Major: Mechanical Engineering. Minor: Related Fields. Thesis: An Examination of the Performance of a Diesel Exhaust Particle Trap. Major Adviser: Prof. D.B. Kittelson.

Alexander Haralampos Hatzikos
B.M.E. '80, University of Minnesota. Major: Mechanical Engineering. Minor: Mathematics. Major Adviser: Prof. B.Y. Liu.

Atsushi Uetake
B.S. '69, Keio University. Major: Mechanical Engineering. Minor: Related Fields. Major Adviser: Prof. J.W. Ramsey.

Gordon Edmund Voltin
B.M.E. with distinction '78, University of Minnesota. Major: Mechanical Engineering. Minor: Fluid Mechanics. Thesis: Heat Transfer and Flow Characteristics for an Array of Impinging jets Including the Effect of Spent Air. Major Adviser: Prof. R.J. Goldstein.

Master of Science in Medicine MAYO GRADUATE SCHOOL OF MEDICINE

Barbara Ann Baker, Moline, Ill.
B.A. summa cum laude '73, Clarke College; M.D. '77, University of Illinois. Major: Medicine. Minor: Related Fields. Thesis: Influence of Changes in Insulin Receptor Binding During Insulin Infusions on the Shape of the Insulin Dose-Response Curve for Glucose Disposal in Man. Major Adviser: Prof. J.E. Gerich.

Master of Science in Neurosurgery
MAYO GRADUATE SCHOOL OF MEDICINE

John M. Gilluffo, Petoskey, Mich.
B.S. '72, University of Michigan; M.S. '73,
M.D. '77, Wayne State University. Major: Neuro-
surgery. Minor: Related Fields. Thesis: The Effect
of Hypoglycemia on Various Physiological Param-
eters in the Brain of Cats. Major Adviser: Prof. T.M.
Sundt.

Master of Science in Orthopedic Surgery
MAYO GRADUATE SCHOOL OF MEDICINE

Stanley Arthur Riggs, Boston, Mass.
B.S. summa cum laude '74, University of New
Hampshire; M.D. '77, Dartmouth Medical School.
Major: Orthopedic Surgery. Minor: Related
Fields. Thesis: Determination of Bone Blood Flow
by Radionuclide-Labeled Microsphere and Di-
phosphonate Techniques. Major Adviser: Prof.
P.J. Kelly.

Master of Science in Otolaryngology

Fridrik Kristjan Gudbrandsson,
Reykjavik, Iceland
M.D. with first class honors '76, University of
Iceland. Major: Otolaryngology. Minor: Related
Fields. Thesis: Effects of Calcium Deficiency on
the Biochemical Composition of the Auditory Os-
sicles and Long Bones in Rats. Major Adviser: Prof.
S.K. Juhn.

Master of Science in Surgery

Bruce Langdon Cunningham
B.A. '71, Trinity College; M.D. '75, Northwestern
University. Major: Surgery. Minor: Anatomy. The-
sis: Rectus Abdominis Muscle Free Flap Anatomical
Investigation and Clinical Experiences. Major
Adviser: Prof. A.R. Shons.

Master of Social Work

Hope Gleicher, Highland Park, Ill.
B.A. cum laude '80, Macalester College. Major:
Social Work. Major Adviser: Prof. R.W.
McClelland.

Patricia Ann Hamm, St. Cloud
B.A. '75, College of St. Benedict. Major: Social
Work. Major Adviser: Prof. Annalee Stewart.

Jeannette Anne Hanlon, St. Paul
B.A. '78, University of Minnesota. Major: Social
Work. Major Adviser: Prof. C.D. Hollister.

James Edward Jenkins, Minneapolis
B.S. '76, College of St. Catherine. Major: Social
Work. Major Adviser: Prof. C. D. Austin.

Rae Jean Marie Karel
B.A. '76, College of St. Catherine. Major: Social
Work. Major Adviser: Prof. S. F. Battle.

Mark Daniel Simpson, Minneapolis
B. S. '79, University of Minnesota. Major: Social
Work. Major Adviser: Prof. Esther Wattenberg.

Janet Cedar Spring
B.S. with honors '69, Case Western Reserve Uni-
versity. Major: Social Work. Major Adviser: Prof.
Annalee Stewart.

Thomas Clayton Wells
B.S. '79, University of Alabama. Major: Social
Work. Major Adviser: Prof. C.D. Hollister.

Master of Social Work

UNIVERSITY OF MINNESOTA, DULUTH

Kathryn Mary Cady

B.A. with high distinction '77, Eastern Kentucky University. Major: Social Work. Major Adviser: Prof. E.R. Gross.

Catherine Ann Hennessy

B.E.S.'77, University of Minnesota. Major: Social Work. Major Adviser: Prof. D.R. Falk.

Ann Marie Huss

B.S.'78, University of Minnesota. Major: Social Work. Major Adviser: Prof. I.E. Carter.

Stanley E. Kaitfors

B.S.S.W.'78, University of North Dakota. Major: Social Work. Major Adviser: Prof. D.R. Falk.

James Eric Kretzmann

B.A.'75, Concordia College. Major: Social Work. Major Adviser: Prof. D.R. Falk.

Kyler Everett Meers

B.S.'77, Bemidji State University. Major: Social Work. Major Adviser: Prof. R.S. Pandey.

Taunja Jo Meers

B.S. magna cum laude '77, Bemidji State University. Major: Social Work. Major Adviser: Prof. R.E. Woehle.

Debbie Lynn Nummela

B.A. magna cum laude '78, University of Minnesota, Duluth. Major: Social Work. Major Adviser: Prof. W.K. Dodge.

Nancy J. Schricker

B.S.'79, Bemidji State University. Major: Social Work. Major Adviser: Prof. J.M. Kramer.

Tom W. Toupal

B.S.'75, University of South Dakota. Major: Social Work. Major Adviser: Prof. W.K. Dodge.

Specialist Certificate in Education

Jeanne Moore Dixon, Ames, Iowa

B.S.'61, M.S.'65, Iowa State University. Field: Special Education. Major Adviser: Prof. J.E. Rynders.

Teresa Lynn Edwards, Minneapolis

B.S.'72, M.A.'81, University of Minnesota. Field: General Educational Administration. Major Adviser: Prof. G.F. Alkire.

Katrina Robertson Green

B.S.'68, University of Minnesota. Field: Elementary School Administration. Major Adviser: Prof. T.L. Mazzoni.

Beth Mason Mackey

B.S.Ed.'66, M.S.Ed.'70, Indiana University. Field: Elementary School Administration. Major Adviser: Prof. R.T. Lambert.

Cheryl Ann Robinson, New Orleans, La.

B.A.'71, Xavier University; M.A.'82, University of Minnesota. Field: Secondary School Administration. Major Adviser: Prof. N.C. Nickerson.

Katherine Lyn Schafer, Minneapolis

B.S. with distinction '74, M.A.'80, University of Minnesota. Field: General Educational Administration. Major Adviser: Prof. V.D. Mueller.

December Candidates for Degrees

Subject to the completion of all curriculum requirements at the close of fall quarter, degrees will be conferred as indicated on those listed below and on others meeting the graduation requirements. Degrees are listed alphabetically.

GRADUATE SCHOOL

Doctor of Education

Mary Terrell Charles, Baton Rouge, La.

B.S. '55, M.Ed. '67, Southern University. Major: Educational Administration. Minor: Supporting Program. Project: A Comparison of Voluntary and Non-Voluntary Programmatic Desegregation Choice Among Urban High Schools. Major Adviser: Prof. V.D. Mueller.

Barry Mark Drevlow, Anoka

B.S. with scholastic honors '67, M.S. '70, St. Cloud State University. Major: Educational Administration. Minor: Supporting Program. Project: Some of the Key Elements Which Would Help Junior High School Teachers of Independent School District #279 Improve Their Instructional Skills. Major Adviser: Prof. V.D. Mueller.

Jim Gregar, North Mankato

B.S.E. '71, Wisconsin State University; M.S. '78, Winona State University. Major: Vocational Education. Minor: Supporting Program. Project: Role Expectations of Marketing and Distributive Education Teacher Educators as Perceived by State Supervisors, College Administrators, and Teacher Educators. Major Adviser: Prof. M.K. Klaurens.

Mary K. St. John Nelson, Mendota Heights

B.S. with high distinction '75, M.A. '78, University of Minnesota. Major: Vocational Education. Minor: Supporting Program. Project: An Analysis of the Educational Needs of Male and Female Owner/Managers of Small Businesses in the Greater St. Paul, Minnesota, Area. Major Adviser: Prof. M.K. Klaurens.

Anthony Joseph Urbaniak, Aberdeen, S.D.

B.A. '69, St. Cloud State University; M.Ed. '76, University of Minnesota. Major: Vocational Education. Minor: Supporting Program. Project: An Appraisal and Comparison of the 2-Year and 4-Year Business Administration Program at Northern State College Based on a Follow Up of the Graduates from 1978 to 1981. Major Adviser: Prof. R.D. Ashmun.

Doctor of Musical Arts

Linda Lou Spicher, Gainesville, Fla.

B.A. '72, West Virginia Wesleyan College; M.A. '74, University of Iowa; M.M. '77, Wichita State University. Major: Music. Minor: Supporting Program. Major Adviser: Prof. D.C. Ware.

Doctor of Philosophy

Betty Malen Anderson, Fargo, N.D.
B.A. summa cum laude '68, Concordia College; M.Ed. '73, University of North Dakota. Major: Educational Administration. Minor: Supporting Program. Thesis: Politics of Persistence: The Legislative Process Resulting in Minnesota's Tuition Tax Concession Statutes for Elementary-Secondary Education. Major Advisers: Profs. V.D. Mueller and T.L. Mazzoni.

Deborah Carol Baker, Bellefonte, Pa.
B.A. '73, M.A. '76, Pennsylvania State University. Major: Speech-Communication. Minor: Supporting Program. Thesis: A Rhetorical Analysis of Communication Style in Initial Meetings of Small Groups. Major Adviser: Prof. E.G. Bormann.

Basil C. Baltzis, Greece

Dipl. '78, National Technical University of Athens; M.S. '80, University of Illinois. Major: Chemical Engineering. Minor: Supporting Program. Thesis: Mathematical Modelling of the Dynamics of Microbial Populations Competing for Non-Renewable and Renewable Resources. Major Adviser: Prof. A.G. Fredrickson.

David Paul Bane, Arrowsmith, Ill.

B.S. with honors '74, B.S. '76, D.V.M. '78, University of Illinois. Major: Veterinary Medicine. Minor: Supporting Program. Thesis: Seasonal Infertility in Gilts: Examination of Reproduction and Associated Infectious Diseases During Summer Months. Major Adviser: Prof. A.D. Leman.

Joan Irena Barber, Wilmington, Del.

B.A. cum laude '77, University of Vermont. Major: Genetics. Minor: Supporting Program. Thesis: Dopachrome Oxido-Reductase: A New Enzyme in the Pigment Pathway. Major Adviser: Prof. R.A. King.

Trevor John Barnes, England

B.S. with honors '78, University College London; M.A. '80, University of Minnesota. Major: Geography. Minor: Supporting Program. Thesis: The Geography of Value, Production and Distribution: Theoretical Economic Geography After Sraffa. Major Adviser: Prof. E.S. Sheppard.

Jon Edward Bathke, Aurora

B.S. with distinction '75, Cert.Spec.Ed. '81, University of Minnesota. Major: Educational Administration. Minor: Supporting Program. Thesis: Relationships Between Collective Bargaining Structures and Collective Bargaining Outcomes for Minnesota Public School Building Administrators. Major Adviser: Prof. T.L. Mazzoni.

**Katherine Lynn Pedro Beardsley,
Ellicott, Md.**

B.S. '72, Oregon State University; M.A. '77, University of Minnesota. Major: Educational Administration. Minor: Supporting Program. Thesis: The Relationship Between Job Satisfaction and Achievement Styles of Clerical Workers. Major Adviser: Prof. N.C. Nickerson.

Richard Oakley Bell, Minneapolis

B.A. '68, Macalester College. Major: Home Economics. Minor: Supporting Program. Thesis: Parent-Adolescent Interaction in Runaway Families. Major Adviser: Prof. D.H. Olson.

**Robert Eugene Benner, Jr.,
Whitehall, Mich.**

B.S. with highest distinction '78, Purdue University. Major: Chemical Engineering. Minor: Supporting Program. Thesis: Equilibria, Stability and Bifurcations in the Physics of Fluid Interfaces. Major Advisers: Profs. L.E. Scriven and H.T. Davis.

Pål Bjørby, Norway

B.A. magna cum laude '70, St. Olaf College; M.A. '72, Middleburg College. Major: Scandinavian. Minor: Supporting Program. Thesis: A Study of an Ideal in the Authorship of Victoria Benedictsson. Major Adviser: Prof. G.K. Stockenström.

Eileen Frances Bostwick

B.S. '71, M.S. '77, Michigan State University. Major: Animal Physiology. Minor: Supporting Program. Thesis: Antigens of the Bovine Embryo and Its Extraembryonic Tissues Throughout Early Pregnancies. Major Adviser: Prof. A.G. Hunter.

**Catherine Rose Brungardt, Winfield,
Kan.**

B.S. Pharm. with highest distinction '78, University of Kansas. Major: Medicinal Chemistry. Minor: Chemistry. Thesis: Synthesis of Analogs of Puromycin as Affinity Labels for the Peptidyl Transferase Center of the *E. coli* Ribosome. Major Adviser: Prof. Robert Vince.

Cheryl Sorensen Bupp, Rockville, Md.

B.A. '77, University of Maryland; M.A. '81, University of Minnesota. Major: Educational Psychology. Minor: Supporting Program. Thesis: An Examination of Shame and Guilt Among American Veterans of the Vietnam Conflict. Major Adviser: Prof. A.R. Anderson.

Jeffrey Thomas Burns, Hartford, Wis.

B.S. '73, University of Wisconsin, Madison; M.S. '79, University of Minnesota. Major: Ecology. Minor: Supporting Program. Thesis: Mate-Switching in House Wrens. Major Adviser: Prof. Frank McKinney.

Christy Ann Caine-Hohman

B.A. with high honor '66, Hamline University; M.A. '69, University of Minnesota. Major: Anthropology. Minor: Supporting Program. Thesis: Normative Typological and Systematic Stylistic Approaches to the Analysis of North-Central Minnesota Ceramics. Major Adviser: Prof. O.E. Johnson.

Jeanne L. Campbell, St. Paul

B.A. '73, University of Oregon; M.A. '78, University of Minnesota. Major: Educational Administration. Minor: Supporting Program. Thesis: Factors and Conditions Influencing Usefulness of Planning, Evaluation, and Reporting in Schools. Major Adviser: Prof. N.C. Nickerson.

**Rick Alan Caulfield, Honolulu,
Hawaii**

B.Ed. with honors '77, M.Ed. '79, University of Hawaii. Major: Education. Minor: Supporting Program. Thesis: The Exploratory Behavior of Mildly and Severely Handicapped Infants: The Developmental Progression from Birth to Two Years. Major Adviser: Prof. H.S. Hansen.

Cheuk-Hung Andrew Cheng, Hong Kong

B.S.E.'78, National Taiwan University; M.S.Aero.E.'81, University of Minnesota. Major: Aerospace Engineering. Minor: Supporting Program. Thesis: Self-Induced Asynchronous Instability in a Partially Filled Rotating Centrifuge on an Elastic Support System. Major Advisers: Profs. A.S. Berman and T.S. Lundgren.

Shui Sheng Chern, Taipei, Taiwan

B.S.'75, National Tsing Hua University. Major: Mechanics. Minor: Metallurgy and Materials Science. Thesis: Viscoelastic Behavior of Cracking in Polymers. Major Adviser: Prof. C.C. Hsiao.

Freddie Mae Clary, Rockaway Township, N.J.

B.A.'74, New College; M.A.'79, University of Minnesota. Major: Sociology. Minor: Supporting Program. Thesis: Life Satisfaction Among Elderly Widowed Women. Major Adviser: Prof. D.G. McTavish.

Patricia C. Contreras, Denver, Colo.

B.S. with high distinction '78, Colorado State University. Major: Pharmacology. Minor: Biochemistry. Thesis: Characterization of the Interaction Between Prolyl-Leucyl-Glycinamide and Morphine. Major Adviser: Prof. A.E. Takemori.

Christine Maureen Cumming, Minneapolis

B.S. *summa cum laude* '74, University of Minnesota. Major: Economics. Minor: Supporting Program. Thesis: An International Comparison of Income Distribution. Major Adviser: Prof. J.S. Chipman.

Thomas Gray Curtis, Jr., Boston, Mass.

B.S.C.E.'67, M.S.C.E.'68, O.E.'71, Massachusetts Institute of Technology. Major: Civil Engineering. Minor: Supporting Program. Thesis: Simulation of Saltwater Intrusion by Analytic Elements. Major Adviser: Prof. O.D. Strack.

Kathleen Lonze Daly

B.A.'70, Quincy College; M.A.T.El.Ed.'77, University of Wisconsin. Major: Education. Minor: Supporting Program. Thesis: The Effect of Training College Students in Listening and Notetaking Skills on Learning from Lecture. Major Adviser: Prof. Robert Dykstra.

Curtis Carl Dary

B.S. with honors '72, University of Wisconsin, La Crosse; M.S.'67, University of Arizona. Major: Entomology. Minor: Supporting Program. Thesis: Physicochemical Structure Activity Relationship of DDT Congeners and the Inhibition of Mitochondrial ATPase. Major Adviser: Prof. L.K. Cutkomp.

Dolores Ann Bolon Dege, Edina

B.S.Ed.'59, Western Illinois University; M.A.'77, University of Minnesota. Major: Speech-Communication. Minor: Supporting Program. Thesis: Verbal and Nonverbal Communication Behaviors in Multicultural Groups: An Exploratory Analysis. Major Adviser: Prof. W.S. Howell.

Gary Eugene DeLander, St. Paul

B.S.'77, University of Colorado. Major: Pharmacology. Minor: Biochemistry. Thesis: The Spinal Cord as a Major Contributory Site for the Development and Expression of Chronic Opiate-Induced Tolerance and Dependence. Major Adviser: Prof. A.E. Takemori.

Avinash R. Deshmukh, Parbhani, India

B.V.S.&A.H.'73, Mahatma Phule Krishi Vidyapeeth; M.V.S.'76, Konkan Krishi Vidyapeeth. Major: Animal Science. Minor: Supporting Program. Thesis: Milk Protein: I. Fractionation Methodology. II. Factors Affecting Proteins in Milk. Major Adviser: Prof. J.D. Donker.

J. Richard Dewey, Bloomington

B.A. with honors '73, Hamline University; M.A.'78, College of St. Thomas. Major: Educational Administration. Minor: Computer and Information Sciences. Thesis: The Effectiveness of Interactive Microcomputer-Controlled Video-Tape/Disc Instruction in an Independent Study Environment. Major Advisers: Profs. W.M. Ammentorp and C.P. Hooker.

Dana Alan Donatucci, Erie, Pa.

B.S.'76, Virginia Polytechnic Institute and State University. Major: Biochemistry. Minor: Supporting Program. Thesis: The Role of Agglutinins (Lectins) in the Nutritional Toxicity of Raw Navy Beans (*Phaseolus Vulgaris*) Specifically with Particular Reference to Their Effect on Intestinal Absorption. Major Adviser: Prof. I.E. Liener.

Erika Lee Doss, Minneapolis

B.A. *magna cum laude* '78, Ripon College; M.A.'81, University of Minnesota. Major: Art History. Minor: American Studies. Thesis: Regionalists in Hollywood: Painting, Film, and Patronage, 1925-1945. Major Adviser: Prof. K.A. Marling.

William Joseph Drasler, North Chicago, Ill.

B.S.Ch.E. with distinction '72, University of Illinois; M.S.Ch.E.'73, University of Wisconsin, Madison. Major: Biomedical Engineering. Minor: Chemical Engineering. Thesis: Viscoelastic Properties of the Normal and Sickled Erythrocyte Membrane. Major Adviser: Prof. K.H. Keller.

Laura Duckett-Newton

B.S.N.'67, Duke University; M.S.'75, University of Maryland. Major: Educational Psychology. Minor: Supporting Program. Thesis: Variables Related to Breast Feeding Success Among Working and Non-Working Mothers. Major Adviser: Prof. S.J. Samuels.

**Robert Alfred Eades, Des Moines,
Iowa**

B.A. cum laude '77, Drake University. Major: Chemistry. Minor: Supporting Program. Thesis: Theoretical Studies of the Abstraction Reactions of the Hydrogen Atom with Halogen and Interhalogen Molecules. $H + F_2$, $H + Cl_2$, $H + Br_2$, $H + ClF$, $H + BrF$, and $H + BrCl$. Major Adviser: Prof. D.A. Dixon.

**Naeem Mohamed Eesa, Damietta,
Egypt**

B.S.'72, M.S.'75, Cairo University. Major: Entomology. Minor: Supporting Program. Thesis: The Correlation Between Circadian Rhythms of Sensitivity to Dichlorvos and Activity in the American Cockroach, *Periplanet americana* L. Major Adviser: Prof. L.K. Cutkomp.

**Mohamed Abdelmonem Elakkad, St.
Paul**

B.S.'59, M.S.'65, University of Cairo. Major: Plant Physiology. Minor: Supporting Program. Thesis: Environmental Stresses Induced by Natural Weed Infestations and Their Effects on Corn and Soybeans. Major Adviser: Prof. R.S. Adams.

Mark Richard Ellenberger, St. Paul

B.A.'72, Middlebury College. Major: Chemical Physics. Minor: Supporting Program. Thesis: Dynamics of Chemical Reactions: Ion Cyclotron Resonance and Crossed Molecular Beam Studies. Major Adviser: Prof. D.A. Dixon.

Daniel Russell Engstrom, Duluth

B.A. magna cum laude '71, University of Minnesota, Duluth; M.S.'75, University of Minnesota. Major: Ecology. Minor: Supporting Program. Thesis: Chemical Stratigraphy of Lake Sediments as a Record of Environmental Change. Major Adviser: Prof. H.E. Wright.

F. Feride Erkü, Istanbul, Turkey

B.A.'75, Bogazici University; M.A.'78, University of Minnesota. Major: Linguistics. Minor: Supporting Program. Thesis: Discourse Pragmatics and Word Order in Turkish. Major Adviser: Prof. B.T. Downing.

Jack E. Fincham, Beatrice, Neb.

B.S.'75, University of Nebraska. Major: Social and Administrative Pharmacy. Minor: Supporting Program. Thesis: Social Psychological Correlates and Determinants of the Initial Drug Therapy Default. Major Adviser: Prof. A.I. Wertheimer.

Patricia K. Finley, Brookings, S.D.

B.S. with high honor '63, South Dakota State University; M.A.'64, Middlebury College. Major: Education. Minor: Spanish. Thesis: Student and Teacher Concepts of Appropriate Teacher Feedback in Classes of Spanish. Major Adviser: Prof. D.L. Lange.

Douglas Eric Fjare, Edina

B.A. cum laude '79, St. Olaf College. Major: Chemistry. Minor: Supporting Program. Thesis: Synthesis and Reactivity of Carbonyl/Nitrosyl Clusters. Major Adviser: Prof. W.L. Gladfelter.

Kristi Ann Fjare, Minneapolis

B.A. cum laude '79, St. Olaf College. Major: Chemistry. Minor: Supporting Program. Thesis: Preparation and Reactions of Group V Carbonyl Compounds Containing Labile Ligands. Major Adviser: Prof. J.E. Ellis.

Ellen Marie Furuya, St. Paul

B.S.'79, Creighton University. Major: Food Science. Minor: Chemistry. Thesis: An Evaluation of the Riboflavin Content in Enriched Pasta Products and of the Parameters Which Contribute to a Change in the Riboflavin Content. Major Adviser: Prof. J.J. Warthesen.

Mary Carol Gannon

B.S.'72, University of Minnesota. Major: Nutrition. Minor: Supporting Program. Thesis: Effect of the Diet or Starvation on Glycogen Synthase Phosphatase Activity in Rat Heart. Major Advisers: Profs. F.Q. Nuttall and P.B. Swan.

Deborah G. Garfin, Dallas, Tex.

B.A. magna cum laude '77, Washington University; M.A.'80, University of Minnesota. Major: Child Psychology. Minor: Supporting Program. Thesis: Cognitive Mapping: Individual Differences Across the Life Span. Major Adviser: Prof. H.L. Pick.

**Richard Donald Garman, Fruitland,
Idaho**

B.S.'76, M.S.'78, University of Idaho. Major: Microbiology. Minor: Supporting Program. Thesis: A New Cytokine Necessary for the in Vitro Generation of Primary Murine Cytolytic T Lymphocytes. Major Adviser: Prof. D.P. Fan.

Steven Paul Geiger, Minneapolis

B.A. cum laude '74, University of Minnesota; M.A.'79, College of St. Thomas. Major: Home Economics. Minor: Business Administration. Thesis: Perceived Stressor Events and Life Changes of Spouses of Licensed Peace Officers. Major Adviser: Prof. P.C. Rosenblatt.

Adel Aziz Michael George, Egypt

B.S. with distinction with class honors '78, Cairo University. Major: Mathematics. Minor: Supporting Program. Thesis: Some Results on Groups Related to Compact Riemann Surfaces. Major Adviser: Prof. Albert Marden.

**Santi Kumar Ghosh, Jamshedpur,
India**

M.S.'77, Indian Institute of Technology. Major: Geophysics. Minor: Supporting Program. Thesis: Theoretical Studies on Seismic Reflections from Vertically Inhomogeneous Media. Major Adviser: Prof. H.M. Mooney.

**Robert James Glinski, Rhinelander,
Wis.**

B.S. with distinction '78, University of Wisconsin, Madison. Major: Chemistry. Minor: Supporting Program. Thesis: Chemiluminescence Studies of the Reactions of Ozone with Small Molecules. Major Adviser: Prof. D.A. Dixon.

Carol Beth Grindem, Roland, Iowa
D.V.M. with distinction '75, Iowa State University. Major: Veterinary Pathology. Minor: Supporting Program. Thesis: Morphologic, Cytochemical and Cytogenetic Characterization of Dog and Cat Leukemic Cells. Major Adviser: Prof. Victor Perman.

**William Merrill Grove, Iowa City,
Iowa**

B.A. with special honors/high distinction '74, M.A.'77, University of Iowa. Major: Psychology. Minor: Supporting Program. Thesis: Numerical Taxonomy of Endogenous Depression. Major Adviser: Prof. P.E. Meehl.

**Erastus Orseer Gyang, Zaria,
Nigeria**

D.V.M.'72, Ahmadu Bello University; M.S.'76, Kansas State University. Major: Veterinary Surgery, Radiology, and Anesthesiology. Minor: Supporting Program. Thesis: Studies on Selective Lymphocyte and Neutrophil Functions of Cows with Left Displaced Abomasum and Effects of Surgery and Levamisole on Lymphocyte and Neutrophil Functions. Major Adviser: Prof. E.A. Usenick.

Steven William Hartley, Minneapolis
B.M.E.'78, M.B.A.'81, University of Minnesota. Major: Business Administration. Minor: Supporting Program. Thesis: Determinants of Expertise and Error in Judgemental Marketing Decisions. Major Adviser: Prof. C.W. Rudelius.

Cynthia M. Heelan, Minneapolis
B.A.'65, Mount Mary College; M.A.'80, University of Minnesota. Major: Educational Administration. Minor: Supporting Program. Thesis: Factors Related to the Success of Quality Circles. Major Advisers: Profs. T.L. Mazzoni and D.A. Morgan.

**Richard Chandler Holmes, St.
Louis, Mo.**

B.A.'73, Webster College; M.A.'74, University of Missouri. Major: Library Science. Minor: Supporting Program. Thesis: The Academic Library Director's Perceived Power and Its Correlates. Major Adviser: Prof. G.P. D'Elia.

**Gregory William Huffman,
Saskatoon, Saskatchewan, Canada**

B.Com. with high honors and distinction '79, University of Saskatchewan. Major: Economics. Minor: Supporting Program. Thesis: An Overlapping Generations Model of Asset Pricing. Major Adviser: Prof. Neil Wallace.

John W. Hull, Jr., Duluth
B.S. cum laude '79, University of Minnesota, Duluth. Major: Chemistry. Minor: Supporting Program. Thesis: Transition Metal Complexes of Severely Crowded Organic Molecules and O-Xylylenes. Major Adviser: Prof. W.L. Gladfelter.

Bruce Dean Hultgren, Cambridge

B.S. with high distinction '72, D.V.M.'74, University of Minnesota. Major: Veterinary Pathology. Minor: Supporting Program. Thesis: Inherited, Chronic, Progressive Hepatic Degeneration in Bedlington Terriers with Elevated Liver Copper Concentrations. Major Adviser: Prof. J.B. Stevens.

**Janice Lynn Klein Hylden, Elk
River**

B.S. summa cum laude '78, College of St. Benedict. Major: Pharmacology. Minor: Supporting Program. Thesis: Pharmacological Characterization of Substance P in the Spinal Cord. Major Adviser: Prof. G.L. Wilcox.

Steven Lewis Ink, Duluth

B.A. cum laude '75, University of Minnesota, Duluth. Major: Nutrition. Minor: Supporting Program. Thesis: Mechanism and Nutritional Significance of Uptake and Accumulation of Pyridoxal by Erythrocytes. Major Adviser: Prof. L.M. Henderson.

**Karen Soderberg Karni, New
Brighton**

B.S. with distinction '63, University of Minnesota; Ed.M.'69, State University of New York, Buffalo. Major: Education. Minor: Supporting Program. Thesis: A Validation Study of a Written Certification for Clinical Laboratory Scientists. Major Adviser: Prof. D.C. Bjorkquist.

M. Sue Kendall, Minneapolis

B.S. magna cum laude '73, Old Dominion University; M.A.'80, University of Minnesota. Major: Art History. Minor: American Studies. Thesis: Rethinking Regionalism: John Stueart Curry and the Kansas Murals Controversy. Major Adviser: Prof. K.A. Marling.

Peter Kelley Kilpatrick, Minneapolis
B.A. summa cum laude '78, Occidental College. Major: Chemical Engineering. Minor: Mathematics. Thesis: Thermodynamic Modeling and Fluid Microstructure Phase Behavior in Amphiphile-Oil-Water Mixtures. Major Advisers: Profs. H.T. Davis and L.E. Scriven.

John William King, Scotch Plains, N.J.

B.A. '75, Franklin and Marshall College. Major: Geology. Minor: Supporting Program. Thesis: Geomagnetic Secular Variation Curves for Northeastern North America for the Last 9,000 Years B.P. Major Advisers: Profs. H.E. Wright and S.K. Banerjee.

John Henry Krumberger, Racine, Wis.

B.A. with distinction '75, University of Wisconsin, Madison; M.A. '79, University of Minnesota. Major: Psychology. Minor: Educational Psychology. Thesis: The Relationship Between Interest and Adjustment to Spinal Cord Injury for Spinal Cord Injured Men. Major Advisers: Profs. R.G. Loper and N.M. Crewe.

Mark Edward Lammers, St. Peter

B.S. with honors '53, M.S. '58, Mankato State College. Major: Education. Minor: Supporting Program. Thesis: An Electromyographic Examination of Selected Muscles in the Right Arm During Trombone Performance. Major Adviser: Prof. E.M. Turrentine.

Ching Chan Lee

B.A. '71, M.Ed. '73, Yonsei University. Major: Education. Minor: Related Fields. Thesis: A Study of the Effects of Student Conceptual Level and Presentation Forms on Concept Attainment. Major Adviser: Prof. R.D. Kimpston.

Sung Jai Lee

B.S. '77, University of California, Los Angeles. Major: Chemistry. Minor: Supporting Program. Thesis: The Use of $h_{2,3/4}$ -Sigmotropic Rearrangements in the Synthesis of Benzo-Substituted Heterocycles. Major Adviser: Prof. P.G. Gassman.

David E. Legg, Kansas City, Mo.

B.S. '78, M.S. '80, University of Missouri. Major: Entomology. Minor: Supporting Program. Thesis: Dispersion, Distribution, and Subsequent Infestations of the European Corn Borer, (*Ostrinia nubilalis*[Hubner]) Among Southern Minnesota Corn Fields. Major Adviser: Prof. H.C. Chiang.

Barbara Jane Leonard

B.S. magna cum laude '63, Gustavus Adolphus College; M.S. '65, University of Minnesota. Major: Hospital and Health Care Administration. Minor: Child Psychology. Thesis: Psychosocial Consequences on Siblings of Children with Chronic Illness. Major Adviser: Prof. T.J. Litman.

Chung Ngoc Leung, Macao

B.Chem. with high distinction '77, University of Minnesota. Major: Physics. Minor: Supporting Program. Thesis: Observable Consequences of SO(10) Unified Theories. Major Adviser: Prof. J.L. Rosner.

Gregory Alan Leyh, St. Paul

B.A. '78, University of Minnesota. Major: Political Science. Minor: Supporting Program. Thesis: Of All Things the Measure Is Man: Interpretation in the History of Political Thought with Special Reference to the Sophists. Major Adviser: Prof. M.Q. Sibley.

Chen Wang Liaw, Taiwan

B.S. Pharm. '77, M.S. '79, National Taiwan University. Major: Biochemistry. Minor: Supporting Program. Thesis: Identification and Characterization of a Rat Gene Regulated by Thyroid Hormone and Lipogenic Diet. Major Adviser: Prof. H.P. Hogenkamp.

Jiann T'suen Lin, Hu-Wei, Taiwan

B.S. '75, National Tsing Hua University. Major: Chemistry. Minor: Supporting Program. Thesis: Chemistry of the Tetrasodium Tetracarbonylmetalate (4-) of Chromium, Molybdenum and Tungsten, $Na_4M(CO)_4$. Major Adviser: Prof. J.E. Ellis.

Ernest N. Lindner, Columbus, Ohio

B.E. '73, Cooper Union School of Engineering and Science; M.S.C.E. '75, Massachusetts Institute of Technology. Major: Mineral Engineering. Minor: Supporting Program. Thesis: A Constitutive and Experimental Investigation of Load-History Influences on the Creep Behavior of Salt. Major Adviser: Prof. S.L. Crouch.

Ruth Dennis Lindquist, Richfield

B.S.N. with high distinction '76, M.S. '79, University of Minnesota. Major: Social and Administrative Pharmacy. Minor: Supporting Program. Thesis: Perceived Control To Reduce Patient Stress in Acute Care. Major Advisers: Profs. R.W. Jeffery and C.A. Johnson.

Judith Ann List, Huntington, N.Y.

B.A. with distinction '78, University of Kansas. Major: Child Psychology. Minor: Supporting Program. Thesis: Developmental Study of the Reliability of Eyewitness Testimony. Major Advisers: Profs. M.P. Perlmutter and D.P. Keating.

Joseph Edwin Low, Hong Kong

B.S. '78, University of Minnesota. Major: Pharmacology. Minor: Supporting Program. Thesis: Base Catalysis and the Oncotoxic Specificity of the Oxazaphosphorine Chemotherapeutics. Major Adviser: Prof. N.E. Sladek.

Philip Nelson Lundin, Columbia Heights

B.A. cum laude '74, Augsburg College; M.A.'76, University of Minnesota. Major: Physical Education. Minor: Philosophy. Thesis: A Biomechanical Study in Comparison: Snow Skiing Versus Roller-skiing. Major Adviser: Prof. L.J. Stoner.

Nancy Ann Mason, Wichita, Kan.

B.A. '69, M.B.A. '74, Wichita State University. Major: Industrial Relations. Minor: Supporting Program. Thesis: Subjective Perceptions of Career Movement in the Mid/Late Career Stage: Objective, Correlates, Antecedents, and Consequences of Various Patterns. Major Adviser: Prof. J.P. Campbell.

Shannon Gainey Matta, New Kensington, Pa.

B.A. '73, Washington and Jefferson College. Major: Anatomy. Minor: Supporting Program. Thesis: Aggregation Studies of Adult Rat Islets of Langerhans. Major Adviser: Prof. G.E. Bauer.

Douglas D. McFarland, Minnetonka

B.A. magna cum laude '68, Macalester College; J.D.'71, New York University. Major: Speech-Communication. Minor: Education. Thesis: Self-Images of Law Professors: Rethinking Legal Education. Major Adviser: Prof. D.L. Rarick.

David George McKee, Placerville, Calif.

B.A.'72, University of the Pacific. Major: Sociology. Minor: Supporting Program. Thesis: The Effects of Family and Public Health Education on Preventive Health Behavior: The Case of Changes in Individual's Smoking, Exercise, and Dietary Behaviors. Major Adviser: Prof. P.D. Reynolds.

Armin Metze, Winnipeg, Canada

B.S.E.E.'77, University of Manitoba; M.S.E.E.'80, University of Minnesota. Major: Electrical Engineering. Minor: Supporting Program. Thesis: Theoretical Modeling of Gas Transport Phenomena in D.C. Glow Discharge Plasmas. Major Adviser: Prof. H.J. Oskam.

Robin Lee Michaels, Minneapolis

B.A. with distinction '77, University of Colorado. Major: Anatomy. Minor: Supporting Program. Thesis: Dye Coupling and Junctional Communication Between Cells of the Rat Pancreatic Islets of Langerhans. Major Adviser: Prof. J.D. Sheridan.

Bill Lynn Miller, Tuscola, Ill.

B.S. with high honors '77, University of Illinois. Major: Animal Science. Minor: Biochemistry. Thesis: Diet Effects on B-Vitamin Production in Ruminants. Major Adviser: Prof. J.C. Meiske.

Robert Barker Miller, Minneapolis

B.A.'77, University of Kansas. Major: Medicinal Chemistry. Minor: Chemistry. Thesis: Synthesis of Ketomethylene and *Trans*-Olefinic Analogs of L-Propyl-L-Leucylglycinamide. Major Adviser: Prof. R.L. Johnson.

Thomas Glenn Moher, Detroit, Mich.

B.S. with high distinction '72, University of Michigan. Major: Computer and Information Sciences. Minor: Supporting Program. Thesis: Token Likelihood Analysis: A High-Resolution Approach to the Characterization of Software Complexity. Major Adviser: Prof. W.B. Thompson.

Thomas William Molitor

B.A. magna cum laude '76, College of St. Thomas; M.S.'78, North Dakota State University. Major: Veterinary Microbiology. Minor: Supporting Program. Thesis: Molecular, Immunological and Pathogenic Properties of Porcine Parvovirus. Major Adviser: Prof. C.C. Muscopolat.

Felipe P. Montt

Lic.'76, Universidad Catolica de Chile; M.A.'81, University of Minnesota. Major: Economics. Minor: Supporting Program. Thesis: An Equilibrium Model of Natural Resources: With an Application to the Copper Market. Major Adviser: Prof. T.J. Sargent.

Kenneth Kenichiro Muramoto, Watsonville, Calif.

B.S. with honors '78, University of California, Berkeley; M.S.'81, University of Minnesota. Major: Mechanics. Minor: Chemical Engineering. Thesis: A Theoretical Analysis of the Aerodynamic and Structural Forces Associated with a Ribbon Parachute Canopy in Steady Descent. Major Adviser: Prof. W.L. Garrard.

Richard John Norell, Darfur

B.S. with distinction '76, M.S.'79, University of Minnesota. Major: Animal Science. Minor: Agricultural Economics. Thesis: Dairy Cattle Sensitivity of Electrical Shocks as Determined with Behavioral Indices. Major Adviser: Prof. R.D. Appleman.

Oluwole Adeoye Odumade, Ijebu-Ede, Nigeria

B.S. with first class honors '70, Ahmadu Bello University; M.S.M.E.'79, University of Minnesota. Major: Mechanical Engineering. Minor: Supporting Program. Thesis: Mobilities of Aggregates of Particles. Major Adviser: Prof. K.T. Whitby.

Neil Edward Olszewski, Lenox,
Mass.

B.S. cum laude '76, University of New Hampshire.
Major: Plant Physiology. Minor: Supporting Program.
Thesis: A Minichromosome of Cauliflower Mosaic Virus DNA. Major Adviser: Prof. T.J. Guilfoyle.

John Opuda-Asibo, Uganda

B.V.M.'77, Makerere University; M.P.H.'80, University of Minnesota. Major: Veterinary Microbiology. Minor: Public Health. Thesis: Expression of Humoral Immunologic Mechanisms Against *Pasteurella Haemolytica* in the Bovine Lung. Major Adviser: Prof. S.K. Maheswaran.

Craig Michael Paulson, Cambridge

B.A.'70, Muskingum College; M.A.'77, Spec.Cert.Ed.'79, University of Minnesota. Major: Educational Administration. Minor: Supporting Program. Thesis: Adolescent Alienation and Labeling. Major Adviser: Prof. N.C. Nickerson.

John V. Pavlik, Racine, Wis.

B.A. with distinction '78, M.A.'80, University of Minnesota. Major: Mass Communication. Minor: Supporting Program. Thesis: Cognitive Complexity and Health Communication. Major Adviser: Prof. D.B. Wackman.

Ewa Peczkalska, Warsaw, Poland

Dipl.Pharm.'76, Medical Academy of Warsaw. Major: Social and Administrative Pharmacy. Minor: Supporting Program. Thesis: Analysis of the Impact of Health Motivations and Beliefs on Self-Medication Behavior. Major Advisers: Profs. A.I. Wertheimer and R.L. Holloway.

Elaine L. Pedersen, Oceano, Calif.

B.A.'73, University of Washington; M.A.'75, Michigan State University. Major: Home Economics. Minor: Anthropology. Thesis: Transportation, Clothing, and Housing Energy Conservation of Rural Families with Teenagers. Major Advisers: Profs. J.B. Eicher and M.J. Hogan.

Harold Brent Pemberton, Hurst,
Tex.

B.S. with honors '78, Texas Tech University. Major: Horticulture. Minor: Plant Physiology. Thesis: A Study of Photoperiod, Endogenous ABA and Growth Dynamics in the Development of Evergreen Azalea Floral Buds. Major Adviser: Prof. H.F. Wilkins.

Shirley A. Super Polejewski, Great
Falls, Mont.

B.S. cum laude '71, College of Great Falls; M.Acc.'72, Utah State University. Major: Educational Administration. Minor: Supporting Program. Thesis: Accounting Educators: Characteristics, Attitudes, Job Satisfaction and Commitment of Faculties Housed in Degree Granting Programs in a Select Area of the State of Minnesota. Major Adviser: Prof. D.A. Morgan.

Vaughan McCutchan Pultz

B.S. summa cum laude '77, Washington and Lee University. Major: Chemistry. Minor: Supporting Program. Thesis: Vibrational Circular Dichroism Studies of Some Small Chiral Molecules. Major Adviser: Prof. A.J. Moscovitz.

Mario Alberto Ramos Olmos, Mexico

Biol. '74, La Universidad Nacional Autonoma de Mexico; M.S.'77, University of Minnesota. Major: Zoology. Minor: Supporting Program. Thesis: Ecological Behavior of Avian Population Movements at a Tropical Study Site. Major Adviser: Prof. D.W. Warner.

William Mason Randle, Rockford,
Ill.

B.S. Agr.'76, University of Arizona; M.S.'79, Michigan State University. Major: Horticulture. Minor: Supporting Program. Thesis: On the Genetic Control of *Puccinia sorghi Schw.* in *Zea mays*. L. Major Adviser: Prof. D.W. Davis.

Jane Edith Rasmussen, Minneapolis

B.A.'49, College of St. Scholastica; M.F.A.'55, University of Georgia. Major: Music. Minor: American Studies. Thesis: 19th Century American Church Music as Viewed Through the Periodicals of the Protestant Episcopal Church in the United States, 1804-74. Major Adviser: Prof. Johannes Riedel.

Thomas Scott Rector, Minneapolis

B.S.'76, University of Wisconsin, Madison; Pharm.D.'78, University of Minnesota. Major: Social and Administrative Pharmacy. Minor: Epidemiology. Thesis: An Epidemiological Evaluation of the Potential Association Between Central Nervous System Depressants and Nocturnal Death in the Elderly. Major Adviser: Prof. A.I. Wertheimer.

Michael Barry Reiner, New York,
N.Y.

B.A. with high honors '76, Haverford College. Major: Child Psychology. Minor: Supporting Program. Thesis: Automatic and Effortful Word Recognition and Its Relationship to Reading Skill. Major Advisers: Profs. D.P. Keating and F.L. Morrison.

David Paul Reinking, Fort Wayne, Ind.

B.A. '71, Concordia Teachers College; M.S. '79, Winona State University. Major: Education. Minor: Supporting Program. Thesis: The Effects of Computer-Mediated Text and Reader Study Behavior on Measures of Reading Comprehension. Major Adviser: Prof. R.L. Schreiner.

Richard J. Rexeisen, Minneapolis

B.A. magna cum laude '75, University of Minnesota. Major: Business Administration. Minor: Supporting Program. Thesis: Bargaining: A Comparative Analysis of the Perceptual Dynamics of Power. Major Adviser: Prof. K.J. Roering.

Jacqueline Ollita Richardson, Ga.

B.S. '69, Morris Brown College; M.S. '71, Fort Valley State College. Major: Educational Administration. Minor: Supporting Program. Thesis: Judicial Opinions Governing Procedural Due Process in Disciplinary Proceedings Involving Suspension and Expulsion of College Students. Major Advisers: Profs. C.P. Hooker and D.A. Morgan.

Steven Clyde Richtsmeier, Babbitt

B.A. cum laude '77, Gustavus Adolphus College. Major: Chemistry. Minor: Supporting Program. Thesis: The Structure of Small Metal Clusters and Molecular Beam Studies of Weakly Bound Systems. Major Adviser: Prof. D.A. Dixon.

David Rolf

B.S. Chem. with honor '78, Michigan Technological University. Major: Chemistry. Minor: Supporting Program. Thesis: Reductive Depolymerization of Permethylated Polysaccharides. Major Adviser: Prof. G.R. Gray.

Victor Manuel González Romero, Guadalajara, Mexico

Major: Chemical Engineering. Minor: Supporting Program. Thesis: Studies of Reactive Polymer Processing with Fiberglass Reinforcement. Major Adviser: Prof. C.W. Macosko.

Karen L. Ryan, Minneapolis

B.A. with honors '76, University of Wisconsin, Milwaukee; M.A. '81, University of Minnesota. Major: Linguistics. Minor: Supporting Program. Thesis: A Grammar of the English Comparative. Major Adviser: Prof. L.G. Hutchinson.

Daryl F. Sas, Chandler

B.A. '77, Dordt College. Major: Cell and Developmental Biology. Minor: Supporting Program. Thesis: Production and Characterization of Monoclonal Antibodies Toward Distinct Regions of the Major Lens Junction Protein MP26. Major Adviser: Prof. R.C. Johnson.

Jean D. Schwind, Minneapolis

B.A. summa cum laude '77, St. Olaf College; M.A. '80, University of Minnesota. Major: English. Minor: Art History. Thesis: Pictorial Art in Willa Cather's Fiction. Major Adviser: Prof. K.R. Bales.

Mark William Severson, St. Paul

B.A. magna cum laude '78, Augsburg College. Major: Chemistry. Minor: Supporting Program. Thesis: Infrared Spectra of Nitric Oxide and Carbon Monoxide on Platinum. Major Adviser: Prof. John Overend.

Bruce Aaron Sevy, Fridley

B.S. '76, University of Illinois. Major: Psychology. Minor: Supporting Program. Thesis: Sex-Related Differences in Spatial Ability: The Effects of Practice. Major Adviser: Prof. T.J. Bouchard.

Yochanan Shachmurove, Tel-Aviv, Israel

B.A. magna cum laude '75, M.B.A. '77, Tel-Aviv University; M.A. '80, University of Minnesota. Major: Economics. Minor: Supporting Program. Thesis: A Rational Expectations Equilibrium Model of Capital Accumulation Under Uncertainty. Major Adviser: Prof. T.J. Sargent.

Rex T. Skodje, Bismarck, N.D.

B.A. with honors '78, Harvard University. Major: Chemical Physics. Minor: Supporting Program. Thesis: The Theory of Chemical Reactions. Major Adviser: Prof. D.G. Truhlar.

Timothy John Smith, Fowler, Ind.

B.S. Pharm. with distinction '78, Purdue University. Major: Pharmacology. Minor: Entomology. Thesis: Investigations of Enzyme Multiplicity and Substrate Specificity in Transacetylase Catalyzed Bioactivation of Arylhydroxamic Acid. Major Adviser: Prof. P.E. Hanna.

Barbara Smit-Spinks, Sioux Falls, S.D.

B.S. with highest honors '79, South Dakota State University. Major: Horticulture. Minor: Plant Physiology. Thesis: Investigation of the Cold Hardiness of *Pinus sylvestris* L. Major Advisers: Profs. B.T. Swanson and A.M. Markhart.

James L. Spickelmier, St. Paul

B.A. with highest honors '63, Bethel College; M.Div. '68, Bethel Seminary; M.Theol. '71, Princeton Seminary. Major: Education. Minor: Supporting Program. Thesis: Case Studies of College Experience in Relationship to Moral Judgement Development. Major Advisers: Profs. M.E. Corcoran and J.R. Rest.

Joel Sheldon Springer

B.A. cum laude '72, California State University, Long Beach; M.S. '74, Purdue University. Major: Home Economics. Minor: Supporting Program. Thesis: Transition to Marriage: A Longitudinal Study of Cognitive and Behavioral Changes. Major Adviser: Prof. D.H. Olson.

**Barbara D. Swanson, Pocatello,
Idaho**

B.A.Ed. with honors '63, M.A. '65, University of Northern Iowa. Major: Education. Minor: English. Thesis: Increasing Learning and Retention of Lecture Content Through a Self-Questioning Review Process. Major Adviser: Prof. A.L. Raygor.

**Judith Rann Thompson, New
Orleans, La.**

B.S. '68, Xavier University; M.Ed. '73, Central State University. Major: Educational Psychology. Minor: Supporting Program. Thesis: Coping Patterns of Mothers Who Have Given Birth to a Child with Disabilities. Major Adviser: Prof. D.G. Force, Jr.

Hao Anh Tieu

B.E. with first class honors '78, University of Auckland. Major: Mechanics. Minor: Mathematics. Thesis: Second-Order Effects in Complex Rheological Flows. Major Adviser: Prof. D.D. Joseph.

Richard Michael Todd, St. Paul

B.A. '73, Stanford University; M.S. '77, University of Minnesota. Major: Agricultural and Applied Economics. Minor: Economics and Mathematics. Thesis: An Equilibrium Model of Seasonal and Cyclical Fluctuations in the Corn-Soybean-Hog Sector. Major Adviser: Prof. T.L. Roe.

**John M. Torkelson, Columbia
Heights**

B.S.Ch.E. '78, University of Wisconsin, Madison. Major: Chemical Engineering. Minor: Supporting Program. Thesis: Fluorescence Spectroscopy of Polymers in Solution: A Study of Intramolecular and Intermolecular Interactions. Major Adviser: Prof. M.V. Tirrell.

**Larry Maurice Tremaine, Pewaukee,
Wis.**

B.A. cum laude '74, Lawrence University. Major: Pharmacology. Minor: Biochemistry. Thesis: Quantification of Individual Organ Contribution to *in Vivo* Conjugation and Renal Transport of Dicarboxylic Acids. Major Adviser: Prof. A.J. Quebbemann.

Chih-Ling Tsai

B.S. '74, Tamkang University; M.S. '77, University of Illinois, Chicago Circle. Major: Statistics. Minor: Mathematics. Thesis: Contributions to the Design and Analysis of Non-Linear Models. Major Adviser: Prof. R.D. Cook.

Chung Ching Tso

B.S. '76, National Taiwan University. Major: Chemistry. Minor: Supporting Program. Thesis: Structures and Catalytic Properties of Chelating Triphosphine Metal Complexes. Major Adviser: Prof. L.H. Pignolet.

David Walton Unander, Chicago, Ill.

B.S. with high honors '77, M.S. '79, Southern Illinois University. Major: Plant Breeding. Minor: Supporting Program. Thesis: Genetic and Environmental Components of Soybean (*Glycine max* [L.] Merr.) Germination Under Cool Temperature Conditions. Major Adviser: Prof. J.W. Lambert.

**Mary Woodall Vermeulen,
Minneapolis**

B.A. '77, College of Wooster; M.S. '82, University of Minnesota. Major: Biochemistry. Minor: Supporting Program. Thesis: Processing of Bacterial Cell Walls by Mononuclear Phagocytes. Major Adviser: Prof. G.R. Gray.

**Mary Josephine Ward, New
Rochelle, N.Y.**

B.A. summa cum laude '78, Bucknell University. Major: Child Psychology. Minor: Supporting Program. Thesis: Patterns of Maternal Behavior with Firstborns and Secondborns: Evidence for Consistency in Family Relations. Major Adviser: Prof. L.A. Sroufe.

**Douglas Franklin Warring,
Bloomington**

B.A. '71, Bethel College; M.A. '75, College of St. Thomas. Major: Educational Psychology. Minor: Supporting Program. Thesis: School Desegregation: Pro-Social Outcomes. Major Adviser: Prof. D.W. Johnson.

**Birgit Luise J. Wassmuth,
Homburg, West Germany**

State Exam. '73, University of Kassel. Major: Mass Communication. Minor: Supporting Program. Thesis: Art Movements and American Print Advertising: A Study of Advertising Graphics 1915-1935. Major Adviser: Prof. W.E. Emery.

**Shinichi Watanabe, Fujiyoshida,
Japan**

B.A. '76, Tokyo Metropolitan University; M.Eco. '78, Hitotsubashi University. Major: Economics. Minor: Supporting Program. Thesis: Search Unemployment, the Business Cycle and the Stochastic Growth. Major Adviser: Prof. E.C. Prescott.

Edna M. White, Stoughton, Mass.

B.A. '66, Stanford University. Major: Business Administration. Minor: Supporting Program. Thesis: Process Quality Control Using a Modified Box Plot from Exploratory Data Analysis. Major Adviser: Prof. R.G. Schroeder.

James William Whittaker
B.S. summa cum laude '78, Concordia University.
Major: Biochemistry. Minor: Chemistry. Thesis:
Structural and Mechanistic Studies of Brevibacterium
Fuscum Protocatechuate 3,4 Dioxygenase.
Major Adviser: Prof. J.D. Lipscomb.

John Kirk Wiencke, Minneapolis
B.S.'77, M.S.'79, University of Minnesota. Major:
Pathobiology. Minor: Supporting Program. Thesis:
A Study of Factors Influencing the Induction of
Sister Chromatid Exchange by Chemical Carcino-
gens in Human Lymphocytes. Major Adviser: Prof.
L.W. Wattenberg.

Michael John Wingfield,
Stellenbosch, South Africa
B.S.'76, B.S. with honors '77, University of Natal;
M.S.'79, University of Stellenbosch. Major: Plant
Pathology. Minor: Entomology. Thesis: Ecology of
the Pine Wood Nematode, *Bursaphelenchus xylo-*
philus in the North Central United States. Major
Adviser: Prof. R.A. Blanchette.

Clifford Dean Wright, Rockville, Md.
B.S. cum laude, with highest honors '77, M.S.'79,
Brigham Young University. Major: Microbiology.
Minor: Biochemistry. Thesis: Influence of Yeast
Mannan Polysaccharide on Human Neutrophil
Functions. Major Advisers: Profs. B.H. Gray and
R.D. Nelson.

Wei-kang Yu, Taiwan
B.S.'76, National Taiwan University. Major: Met-
allurgy and Materials Science. Minor: Supporting
Program. Thesis: Thermally Activated Processes
Associated with Fatigue Thresholds in Fe-Si Binary
and Aluminum Alloys. Major Adviser: Prof. W.W.
Gerberich.

John Michael Zimmel
B.A. cum laude '76, College of St. Thomas. Major:
Chemistry. Minor: Supporting Program. Thesis:
Motion of Rodlike Molecules. Major Adviser: Prof.
W.G. Miller.

Doctor of Philosophy

MAYO GRADUATE SCHOOL OF MEDICINE

Bruce Millring Boman, Minneapolis
B.A. with honor '72, Hamline University;
M.D.'76, University of Minnesota. Major: Medi-
cine. Minor: Supporting Program. Thesis: The
Role of Plasma Membrane Phosphorylation in
Modulation of Membrane Functions During the
G1 Phase of the Cell Cycle. Major Adviser: Prof.
T.P. Dousa.

Master of Aerospace Engineering

David Daniel Weise, Bloomington
B.Aero.E.M.'80, University of Minnesota. Major:
Aerospace Engineering. Minor: Related Fields.
Project: A Two-Dimensional Flutter and Acceler-
ameter Transfer Function Computer Package and
Design Study. Major Adviser: Prof. B.S. Liebst.

Master of Architecture

Jack Gerard Bullo, Sterling Heights,
Mich.
B.S.Arch.'80, Lawrence Institute of Technology.
Major: Architecture. Thesis: A Mixed Use Devel-
opment. Major Adviser: Prof. R.D. Clemence.

John Charles Olfelt, Minneapolis
B.A.'79, St. Olaf College. Major: Architecture.
Thesis: Religious/Educational Community of the
North Oubangui. Major Adviser: Prof. R.D.
Clemence.

Laura Joy Sanden, Minneapolis
B.A.'79, Trinity University. Major: Architecture.
Thesis: Artist's Retreat, Washington Depot, Con-
necticut. Major Adviser: Prof. R.D. Clemence.

Sarah Hills Susanka, Minneapolis
B.Arch.'78, University of Oregon. Major: Architec-
ture. Thesis: A Design Methodology Developed
and Applied. Major Adviser: Prof. R.D. Clemence.

Spyridon Vrettos, Athens, Greece
Dipl.'75, National Technical University of Athens.
Major: Architecture. Thesis: Architecture and
Space Through Filmmaker's Eyes. Major Adviser:
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Master of Arts

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B.A. '78, University of Minnesota. Major: Museology. Minor: Art History. Major Adviser: Prof. K.A. Marling.

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B.A. '75, University of Wisconsin, Madison. Major: Industrial Relations. Minor: Related Fields. Thesis: Environmental Scarcity/Munificence and the Commission of Antitrust Violations. Major Adviser: Prof. H.E. Miller.

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B.S. '63, Macalester College. Major: Elementary Education. Minor: Related Fields. Major Adviser: Prof. Robert Dykstra.

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B.A. with distinction '80, Iowa State University. Major: Spanish. Minor: Portuguese. Thesis: The Humorous Function of Jokes and Hoaxes in *Don Quijote*. Major Adviser: Prof. A.N. Zahareas.

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B.A. magna cum laude '73, University of Minnesota. Major: Geography. Minor: Related Fields. Thesis: A Geographical Approach to Assessing the Role of Mass Transit in Meeting the Ground Transportation Needs of the Minneapolis-St. Paul International Airport. Major Adviser: Prof. R.B. Adams.

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Major: Mass Communication. Minor: Related Fields. Thesis: Barriers to Publishing Experienced by Newspapers Struggling for Development and Political Reporting in Evolving African Countries. Major Adviser: Prof. W.E. Emery.

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B.A. '77, University of New Mexico. Major: English. Minor: Related Fields. Major Adviser: Prof. W.A. Madden.

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B.A. '76, University of Minnesota. Major: Sociology. Minor: Political Science. Thesis: Individual Prestige in an Interactive Setting: Theory and Measurement. Major Adviser: Prof. David Cooperman.

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B.A. '79, University of Chicago. Major: Industrial Relations. Minor: Related Fields. Thesis: The Physician Labor Market. Major Adviser: Prof. R.E. Azevedo.

Riaz Ahmad Malik
M.A. '79, University of Karachi. Major: Anthropology. Minor: Related Fields. Thesis: The Beaver Creek Site, (32 EM 49, N.Dak.) Pre-Ceramic Lithics. Major Adviser: Prof. O.E. Johnson.

Janet S. Marshall-Thoreen
B.I.S. '81, University of Minnesota. Major: Communication Disorders. Minor: Related Fields. Thesis: Use of the Communication Abilities Questionnaire for Identifying Preschool Children at Risk for Speech-Language Problems. Major Adviser: Prof. R.P. McDermott.

Ann Marie McAndrew
B.S. with distinction '81, Iowa State University. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. S.L. Lindborg.

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B.A. '70, American University. Major: History. Minor: Related Fields. Major Adviser: Prof. A.F. Isaacman.

Thomas Philip Murtha, New York,
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B.A. '73, University of Minnesota. Major: Public Affairs. Major Adviser: Prof. R.T. Kudrle.

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Alexandria, Va.
B.S. with highest honors '77, Bethel College. Major: Mathematics Education. Minor: Related Fields. Major Adviser: Prof. J.E. Stochl.

Lisa Dow Neal, Rapid City, S.D.
B.A. magna cum laude '79, Carleton College. Major: French. Minor: Education. Thesis: *Ronsard: De l'Androgyne a' la Perversion par Voix Graphique*. Major Adviser: Prof. T.C. Conley.

Janet M. Neis, Anoka
B.S. '80, St. John's University. Major: Library Science. Minor: Related Fields. Major Adviser: Prof. J.H. Leigh.

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B.S. cum laude '73, University of Minnesota, Duluth. Major: Art Education. Minor: Related Fields. Major Adviser: Prof. M.D. Day.

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B.S. '74, University of Minnesota. Major: Educational Psychology. Minor: Related Fields. Major Adviser: Prof. D.G. Force, Jr.

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B.A. with high scholastic honors '74. B.S. with high scholastic honors '75, St. Cloud State University. Major: Industrial Relations. Minor: Related Fields. Thesis: *An Analysis of Collective Bargaining Contracts for Symphony Orchestras*. Major Adviser: Prof. R.E. Azevedo.

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Master of Science

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Comparative Study of Two Treatment Approaches
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B.S. with distinction '81, University of Minnesota. Major: Food Science. Minor: Related Fields. Thesis: Characterization of Calcium Caseinate in Terms of Functionality and Utilization in Imitation Cheese. Major Adviser: Prof. H.A. Morris.

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B.A.'78, Merrimack College. Major: Pharmacognosy. Minor: Related Fields. Thesis: Callus-Suspension and Liquid Shoot Tissue Cultures. Major Adviser: Prof. E.J. Staba.

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B.S.'81, University of Minnesota. Major: Forestry. Minor: Related Fields. Thesis: Utilization of Balsam Poplar as a Raw Material for Waferboard Furnish. Major Adviser: Prof. R.O. Gertjensen.

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B.A. '77, Carleton College. Major: Environmental Health. Minor: Related Fields. Major Adviser: Prof. C.E. McJilton.

Sharon Ann Ridgeway, Monticello
B.S. summa cum laude '81, College of St. Benedict. Major: Nursing. Minor: Related Fields. Thesis: Professional Self-Perceptions of Nursing Students Under Cooperative and Individualistic Conditions. Major Adviser: Prof. S.A. Corcoran.

Deborah Rene Ringdahl, Little Rock, Ark.
B.A. magna cum laude '77, Luther College. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. K.G. Dineen.

Leonard Nathan Rosenberg, Bergenfield, N.J.
B.S. Pharm. '80, Philadelphia College of Pharmacy and Science. Major: Social and Administrative Pharmacy. Minor: Related Fields. Major Adviser: Prof. A.I. Wertheimer.

Ajit Kumar Roy, Calcutta, India
B.Tech. with first class honors '80, Indian Institute of Technology. Major: Mechanics. Minor: Mathematics. Major Adviser: Prof. Robert Plunkett.

Roger Garms Ruckert, Blaine
B.A. '77, Princeton University. Major: Computer and Information Sciences. Minor: Music. Thesis: A Mean Value Analysis Based Package for the Solution of Product-Form Queueing Network Models. Major Adviser: Prof. S.C. Bruell.

Albert Richard Runzel, Eagan
B.A. '81, College of St. Scholastica. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. K.G. Dineen.

Timothy James Ryan, Redwood Falls
B.S. '79, University of Minnesota. Major: Environmental Health. Minor: Related Fields. Major Adviser: Prof. Donald Vesley.

Theron Michael Salmela
B.S. with distinction '73, University of Minnesota. Major: Animal Science. Minor: Related Fields. Major Adviser: Prof. D.E. Otterby.

Beverly Ann Sautner, Lakeville
B.S. '67, University of Minnesota. Major: Botany. Minor: Related Fields. Major Adviser: Prof. E.J. Cushing.

Jeffrey Ray Schussler, Deepwater, Mo.
B.S. '78, Central Missouri State University. Major: Plant Physiology. Minor: Related Fields. Thesis: Abscisic Acid and Its Relationship to Seed Filling in Soybeans. Major Adviser: Prof. M.L. Brenner.

Raji Ananth Shankar, St. Paul
B.S. '76, Sophia College. Major: Biochemistry. Minor: Chemistry. Thesis: Purification and Properties of Glutamine Synthetase from Liver of *Squalus acanthias*. Major Adviser: Prof. P.M. Anderson.

Margaret Moore Sherman, Winona
B.S. '72, College of St. Teresa. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. B.M. Feldman.

Marianne E. Siebenaler, Rochester
B.S. '71, College of St. Teresa; M.S. '80, Winona State University. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. M.L. Duxbury.

Allan W. Siegner, Jr., Buffalo, N.Y.
B.A. '74, Brown University. Major: Ecology. Minor: Related Fields. Major Adviser: Prof. D.F. Parmelee.

Karen Skraba, Hibbing
B.A. '76, College of St. Scholastica. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. M.I. Harris.

Jean Ellen Small, Minneapolis
B.A. '78, University of South Florida. Major: Environmental Health. Minor: Related Fields. Major Adviser: Prof. J.B. Stevens.

Warren K. Snyder
B.A. '74, University of Bridgeport; M.S. '78, Ph.D. '81, D.D.S. '81, New York University. Major: Dentistry. Minor: Related Fields. Thesis: Biochemical Measurements of Crevicular Fluid Correlated with the Clinical and Microbial Parameters of Periodontal Disease. Major Adviser: Prof. B.L. Pihlstrom.

Santina Isabel Sollie, Austin
B.S. magna cum laude '79, Winona State University. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. Kathleen Maykoski.

Susan Kathleen Spindler, St. Paul
B.S.N. '77, University of Minnesota. Major: Nursing. Minor: Related Fields. Thesis: The Effects of Grief Work Education on Mental Health Nurses' Death Anxiety and Locus of Control. Major Adviser: Prof. S.R. Edwardson.

Janice Eleanor Swedberg, New Hope
B.S.N. '60, St. Olaf College. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.A. Corcoran.

Pe Thein, Burma
B.S. '67, Arts and Science University, Rangoon. Major: Forestry. Minor: Related Fields. Thesis: Economics of Teak Plantation Management in Burma. Major Adviser: Prof. H.M. Gregersen.

Tuan Phuoc Tran
B.E.E. with distinction '79, University of Minnesota. Major: Physics. Minor: Computer and Information Sciences. Major Adviser: Prof. Morton Hamermesh.

Mary Margaret Tuchscherer,
Appleton, Wis.
B.S. cum laude '79, St. Norbert College. Major: Anatomy. Minor: Related Fields. Thesis: Distributions of Substance P-Like, Cholecystokinin-Like, and Somatostatin-Like Immunoreactive Cells in Rat Dorsal Root Ganglia. Major Advisers: Profs. V.S. Seybold and R.P. Elde.

Anna Marie Vergara, Los Angeles,
Calif.
D.M.D. '78, University of the Philippines. Major: Dentistry. Minor: Related Fields. Thesis: A Study on the Relationship Between Oral Morphology and Jaw Movement. Major Adviser: Prof. T.M. Speidel.

Cynthia Sue Volden, Viroqua, Wis.
B.A. cum laude '81, Luther College. Major: Entomology. Minor: Statistics. Thesis: Temperature Effects on the Reproductive Biology of *Trichogramma* sp. Major Adviser: Prof. H.C. Chiang.

Scott Raymond Ward
B.S. '81, University of Minnesota. Major: Environmental Health. Minor: Related Fields. Major Adviser: Prof. J.B. Stevens.

Richard Holway Warner,
Minneapolis
B.S. '77, University of Minnesota. Major: Botany. Minor: Related Fields. Thesis: Systematics of the Genus *Monolena* (Melastomataceae) in Central America. Major Adviser: Prof. Thomas Morley.

Frank Hao Wen, Taiwan
Major: Agricultural Economics. Minor: Related Fields. Major Adviser: Prof. K.W. Easter.

Lynette Ann Wheelock, Waseca
B.A. '78, College of St. Catherine. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. S.A. Corcoran.

Douglas Scott Wilson, St. Paul
B.S. with distinction '78, University of Minnesota. Major: Agricultural Economics. Minor: Related Fields. Thesis: Determining Own Price Elasticity for Residential Demand of Electricity: An Error Component Approach. Major Adviser: Prof. K.W. Easter.

Suzanne Lynne Woolman, Rochester
B.S. '65, Pennsylvania State University. Major: Nursing. Minor: Related Fields. Major Adviser: Prof. K.S. Sodergren.

Larry George Zechman, Rosemount
B.S. with distinction '75, Pennsylvania State University. Major: Food Science. Minor: Related Fields. Thesis: Natural Convection Heating of Liquids in Metal Containers. Major Adviser: Prof. I.J. Pflug.

Master of Science

UNIVERSITY OF MINNESOTA, DULUTH

Elizabeth Sara Anderson
B.A. '80, Augustana College. Major: Biology. Minor: Related Fields. Thesis: The Impact of the Forest Tent Caterpillar (*Malacosoma disstria*) on Stem Growth in Quaking Aspen (*Populus tremuloides*) and Paper Birch (*Betula papyrifera*). Major Adviser: Prof. D.J. Schimpf.

Peter Iheanyichukwu Ekechukwu
B.S. '77, University of Abadan. Major: Biology. Minor: Related Fields. Major Adviser: Prof. S.C. Hedman.

Daniel Mark Hennessy
B.S. cum laude '80, Northland College. Major: Chemistry. Minor: Business Administration. Major Adviser: Prof. J.C. Nichol.

Stephen Fink Mayer
B.S. '81, Indiana State University. Major: Biology. Minor: Related Fields. Thesis: Populations of *Betula cordifolia* in Minnesota. Major Adviser: Prof. D.J. Schimpf.

Beth A. Middleton
B.S. '78, University of Wisconsin, Madison. Major: Biology. Minor: Related Fields. Thesis: Sandspit Vegetation and Geomorphic Processes in the Apostle Islands, Wisconsin. Major Adviser: Prof. D.J. Schimpf.

Todd Edwin Perry
B.A. '80, Luther College. Major: Biology. Minor: Chemistry. Thesis: Spatial Distribution of Phytoplankton and Protozoa on the Surface Film of a Northern Minnesota Lake. Major Adviser: Prof. J.R. Hargis.

Karen L. Steinmaus
B.S. '79, Winona State University. Major: Geology. Minor: Related Fields. Thesis: Geology and Exploration Geochemistry of Glacial Deposits of Northeastern Itasca County, Minnesota. Major Adviser: Prof. C.L. Matsch.

Master of Science

MAYO GRADUATE SCHOOL OF MEDICINE

Kishan Chandra Agarwal, Edison,
N.J.
M.B.B.S.'71, M.D.'74, Jiwaji University. Major:
Pediatrics. Minor: Pathology. Thesis: Platelets and
Extra Cardiac Conduits in Congenital Heart De-
fects. Major Adviser: Prof. R.H. Feldt.

Joseph Ralph Cass, Rochester
B.S.'75, University of Iowa. Major: Orthopedic
Surgery. Minor: Related Fields. Thesis: Three-
Dimensional Kinematic Analysis of the Ankle and
Sub-Talar Joints After Serial Lateral Collateral
Ligament Sectioning. Major Adviser: Prof. B.F.
Morrey.

Master of Science in Aerospace Engineering

Lalet Mohan Sharma, London,
England
B.S. with second class honours '80, Imperial Col-
lege of Science and Technology. Major: Aerospace
Engineering. Minor: Related Fields. Major Ad-
viser: Prof. T.A. Wilson.

Master of Science in Agricultural Engineering

Gerardo G. Breto, Venezuela
Ing.Mec.'75, University of Carabobo. Major: Agri-
cultural Engineering. Minor: Related Fields. Ma-
jor Adviser: Prof. F.G. Bergsrud.

Master of Science in Chemical Engineering

John Robert Englert, Westchester,
Ill.
B.S.Ch.E.'81, Northwestern University. Major:
Chemical Engineering. Minor: Related Fields.
Thesis: Dynamic Behavior of Macromolecules near
Attractive and Repulsive Solid/Liquid Interfaces.
Major Adviser: Prof. M.V. Tirrell.

Peter Andrew Gits, St. Paul
B.S.'80, College of St. Benedict. Major: Chemical
Engineering. Minor: Related Fields. Thesis: Tri-
plet-Triplet Annihilation of Biacetyl. Major Ad-
viser: Prof. R.W. Carr, Jr.

Jeffrey Bruce Tunkel, Perth Amboy,
N.J.
B.S.E. cum laude '80, University of Pennsylvania.
Major: Chemical Engineering. Minor: Related
Fields. Thesis: Selectivity in the Feeding of *Tet-
rahymena Pyriformis* on Bacterial Prey. Major
Adviser: Prof. A.G. Fredrickson.

Master of Science in Civil Engineering

Avry Dotan
B.S.C.E.'81, Technion-Israel Institute of Technol-
ogy. Major: Civil Engineering. Minor: Related
Fields. Thesis: Hydropower Potential at Existing
Dams in the State of Minnesota. Major Adviser:
Prof. J.S. Gulliver.

Juan Fernando Duperly, Colombia
Ing.Civ.'80, La Universidad de Medellin. Major:
Civil Engineering. Minor: Related Fields. Major
Adviser: Prof. L.E. Goodman.

Stephen John Greenwood,
Minneapolis
B.C.E. with distinction '75, University of Minne-
sota. Major: Civil Engineering. Minor: Industrial
Engineering. Thesis: Computer Stimulation and
Process Study of Pressure Filtration for Sewage
Dewatering. Major Adviser: Prof. W.J. Maier.

Dong-Sool Kim, Korea
B.S.'81, Han Yang University. Major: Civil Engi-
neering. Minor: Related Fields. Major Adviser:
Prof. M.J. Semmens.

Pedro Henrique Perez De Moura,
Pelotas, Brazil
Eng. Mec. '78, Universidade Federal do Rio Grande do Sul. Major: Civil Engineering. Minor: Related Fields. Thesis: An Investigation on the Effect of End Plates on the Flow Around a Circular Rough Cylinder. Major Adviser: Prof. Cesar Farrell.

Kerstin Theresa Schurr, Seattle,
Wash.
B.S. magna cum laude '80, University of Washington. Major: Civil Engineering. Minor: Related Fields. Thesis: Biogeochemistry of Selected Metals in a Forested *Sphagnum* Bog in Minnesota. Major Adviser: Prof. S.J. Eisenreich.

Durga Prasad Singh, India
B.E. '73, University of Allahabad; M.B.M. '82, Banaras Hindu University. Major: Civil Engineering. Minor: Computer and Information Sciences. Major Adviser: Prof. C.E. Bowers.

Master of Science in Dentistry

MAYO GRADUATE SCHOOL OF MEDICINE

Keith Allan Kemnitz, Rochester
B.A. cum laude '76, Augustana College; D.D.S. summa cum laude '80, Loyola University. Major: Dentistry. Minor: Biometry and Health Information Systems. Thesis: An Implant Study of Mandibular Advancement Surgery. Major Adviser: Prof. A.H. Sather.

Paul Joseph Svoboda, Brookfield,
Wis.
D.D.S. '79, Marquette University. Major: Dentistry. Minor: Related Fields. Thesis: The Effect of the Gingival Sulcular Epithelium on New Attachment and Pocket Depth Following Periodontal Surgery. Major Adviser: Prof. C.M. Reeve.

Master of Science in Electrical Engineering

David Fishbaine
B.S. with great distinction '78, McGill University. Major: Electrical Engineering. Minor: Related Fields. Thesis: An Acoustic Tomography System. Major Adviser: Prof. R.K. Mueller.

John Warren Meisner, Bismarck,
N.D.
B.S. '79, North Dakota State University. Major: Electrical Engineering. Minor: Computer and Information Sciences. Major Adviser: Prof. F.N. Bailey.

Pablo Hector Iburgüengoytia
Gonzalez
Ing. '80, La Universidad Autonoma Metropolitana. Major: Electrical Engineering. Minor: Related Fields. Major Adviser: Prof. L.L. Kinney.

Patti L. Prairie, Rochester
B.A. with distinction '73, University of Minnesota. Major: Electrical Engineering. Minor: Related Fields. Major Adviser: Prof. L.L. Kinney.

Michael Lynn Kerbaugh, Danville,
Ky.
B.S. '81, St. John's University. Major: Electrical Engineering. Minor: Physics. Thesis: Sputtered ZnO for Surface Acoustic Wave Devices. Major Adviser: Prof. W.P. Robbins.

Richard Arden Stensland, Bricelyn
B.S.E.E. '79, University of Minnesota. Major: Electrical Engineering. Minor: Industrial Engineering. Major Adviser: Prof. F.N. Bailey.

Quang Canh Le
B.E.E. '81, University of Minnesota. Major: Electrical Engineering. Minor: Related Fields. Thesis: Engineering of the FEMTO Probe. Major Adviser: Prof. A.A. Tuszynski.

Terry E. Straetker, Scottsbluff, Neb.
B.S.E.E. '77, South Dakota School of Mines and Technology. Major: Electrical Engineering. Minor: Related Fields. Major Adviser: Prof. L.L. Kinney.

Daniel George McCreary
B.A. cum laude '82, Carleton College. Major: Electrical Engineering. Minor: Computer and Information Sciences. Major Adviser: Prof. W.R. Robbins.

Abdolghafoor Toorani, Iran
B.E.E. '80, University of Minnesota. Major: Electrical Engineering. Minor: Computer and Information Sciences. Major Adviser: Prof. L.L. Kinney.

Xiaonan Zhang, China
Major: Electrical Engineering. Minor: Physics. Thesis: Thermoelectrical Noise and Current Noise in Semiconductors. Major Adviser: Prof. Aldert van der Ziel.

Master of Science in Geo-Engineering

Gregory L. Hempen, St. Louis, Mo.
B.S. '71, Junior College District of St. Louis.
Major: Geo-Engineering. Minor: Related Fields.
Thesis: Karts Detection in Foundation Exploration.
Major Adviser: Prof. Charles Fairhurst.

Joel Scott Kuszmaul, Detroit, Mich.
B.S. '81, Michigan Technological University.
Major: Geo-Engineering. Minor: Related Fields.
Thesis: Development of an Axisymmetric Boundary Element Program for Modeling Mechanical Cratering.
Major Adviser: Prof. S.L. Crouch.

Master of Science in Mechanical Engineering

Mohammed Asif Ansari, Pakistan
B.E. '80, N.E.D. University of Engineering and Technology.
Major: Mechanical Engineering. Minor: Related Fields.
Thesis: Natural Convection and Radiation from a Finned Horizontal Tube with Vertical and Horizontal Shrouding Surfaces.
Major Adviser: Prof. E.M. Sparrow.

Mark Gilbert Butterworth,
Minneapolis
B.M.E. with high distinction '81, University of Minnesota.
Major: Mechanical Engineering. Minor: Related Fields.
Thesis: Natural Convection Electrochemical Mass Transfer from Cubic Cavities and Vertical Cylinders.
Major Adviser: Prof. R.J. Goldstein.

John Peter Hinsverk, Fridley
B.M.E. with distinction '81, University of Minnesota.
Major: Mechanical Engineering. Minor: Related Fields.
Thesis: Automatic Formulation of Bond Graph Based System Models for Hydraulic Simulation.
Major Adviser: Prof. Max Donath.

Jia-Yush Yen, Taipei, Republic of China
B.S. '80, National Tsing Hua University.
Major: Mechanical Engineering. Minor: Related Fields.
Thesis: Experimental Study of a Multi-Cathode Arc.
Major Adviser: Prof. Emil Pfender.

Michael Lynn Zumbrunnen,
Burnsville
B.M.E. '80, University of Minnesota.
Major: Mechanical Engineering. Minor: Related Fields.
Thesis: In-Tube Melting Subject to Circumferentially Non-Uniform Heating in Vertical and Inclined Orientations.
Major Adviser: Prof. E.M. Sparrow.

Master of Science in Metallurgy and Materials Science

Aloyce Jean Rholl, Burnsville
B.Chem. with distinction '75, University of Minnesota.
Major: Metallurgy and Materials Science. Minor: Related Fields.
Thesis: Quantitative Analysis of Phosphorous in Phosphosilicate Glass Using Energy Dispersive X-ray in a Scanning Electron Microscope.
Major Adviser: Prof. W.W. Gerberich.

Master of Science in Orthopedic Surgery

MAYO GRADUATE SCHOOL OF MEDICINE

Rick William Bassett, San Marino, Calif.
B.A. magna cum laude '74, Harvard College;
M.D. '78, University of Cincinnati.
Major: Orthopedic Surgery. Minor: Related Fields.
Thesis: Three-Dimensional Static Force Analysis of the Human Shoulder Joint in 90° of Abduction.
Major Adviser: Prof. E.Y. Chao.

Master of Social Work

Kari E. Aasan, Norway
B.S. with honors '71, Texas Woman's University.
Major: Social Work. Major Adviser: Prof. Robert McLelland.

Georgia Mae Patton, Minneapolis
B.A. '79, University of Minnesota. Major: Social Work. Major Adviser: Prof. N.F. Bracht.

Judith Sylvia Pilz, Minneapolis
B.A. '80, University of Minnesota. Major: Social Work. Major Adviser: Prof. J.K. Quam.

Michael Jeffrey Wechsler, Bronx, N.Y.
B.S. magna cum laude '75, State University of New York. Major: Social Work. Major Adviser: Prof. J.K. Quam.

Master of Social Work

UNIVERSITY OF MINNESOTA, DULUTH

Elizabeth Twining Blue
B.A. '70, Macalester College. Major: Social Work. Major Adviser: Prof. D.R. Falk.

Steven James Chadwick
B.S.W. '77, University of Illinois. Major: Social Work. Major Adviser: Prof. R.S. Pandey.

Mary Forseth Clausen
B.A. '79, University of Minnesota. Major: Social Work. Major Adviser: Prof. D.R. Falk.

Barbara Ann Doherty
B.S. '69, University of Minnesota. Major: Social Work. Major Adviser: Prof. I.E. Carter.

Linda Lou Duhaime
B.S.W. '81, University of Minnesota. Major: Social Work. Major Adviser: Prof. W.K. Dodge.

Kathleen Sue Dunn
B.A. magna cum laude '73, West Virginia State College. Major: Social Work. Major Adviser: Prof. D.R. Falk.

Judith Lee Emerson
B.S. '78, University of Minnesota. Major: Social Work. Major Adviser: Prof. W.K. Dodge.

Julie Annette Johnson
B.A. '79, University of Wisconsin, Madison. Major: Social Work. Major Adviser: Prof. Gary Askerooth.

Pamela Ann Palmer
B.S. '72, Mankato State College. Major: Social Work. Major Adviser: Prof. E.R. Gross.

Thelma Marie Pederson
B.S. magna cum laude '81, Eastern Michigan University. Major: Social Work. Major Adviser: Prof. W.K. Dodge.

David Earl Sainio
B.A. '80, University of Minnesota. Major: Social Work. Major Adviser: Prof. I.E. Carter.

Deborah Carol Vosburgh
B.A. '74, Moorhead State College. Major: Social Work. Major Adviser: Prof. W.K. Dodge.

Shari Weir
B.A. '72, Bowling Green University. Major: Social Work. Major Adviser: Prof. D.R. Falk.

Specialist Certificate in Education

Laurence Gregory Borden, Pensacola, Fla.
B.A. '74, M.Ed. '76, University of Florida. Field: Special Education. Major Adviser: Prof. F.H. Wood.

Anne Marie Luzwick, Chicago, Ill.
B.S. '64, Loyola University; M.Ed. '68, University of Illinois. Field: Special Education. Major Adviser: Prof. F.H. Wood.

Ann Marie McAndrew
B.S. with distinction '81, Iowa State University. Field: School Psychology. Major Adviser: Prof. S.L. Lindborg.

Bonita Mae Sevcik, Minneapolis
B.A. cum laude '77, Augustana College. Field: School Psychology. Major Adviser: Prof. Byron Egeland.

Wendy White, Covina, Calif.
B.S. with honors '73, University of California, Davis; M.A. '83, University of Minnesota. Field: School Psychology. Major Adviser: Prof. S.L. Lindborg.

Academic Costume

Academic costume—cap, gown, and sometimes hood—may be worn by anyone with a college degree, or by a candidate whose degree is soon to be awarded. Characteristics of costumes show their wearers' highest degrees and, often, the fields of major interest and the institutions by which the degrees are granted.

All bachelors' and masters' gowns are black and untrimmed. The bachelor's gown has a long pointed sleeve, the master's a closed sleeve with an arm slit. Doctors' gowns in the United States are usually black, with velvet front facings and sleeve crossbars. Some universities, especially those abroad, prescribe colorful crimson, bright red, or other colors, set off by black or colored facings.

At commencements, degree candidates wear the gowns for the degrees they are about to receive. Hoods are worn only by those who already possess degrees. Anyone who has a University of Minnesota degree may wear the Minnesota hood—black with a maroon chevron on gold. The length and shape of a hood identify the most advanced degree its wearer has earned, and the hood's velvet edging shows the degree's field: dark blue for philosophy, light blue for education, green for medicine, lilac for dentistry, orange for engineering, russet for forestry, drab for business, olive green for pharmacy, purple for law, gray for veterinary medicine, golden yellow for science, white for liberal arts.

Caps—usually tasseled mortarboards—show by tassel color the nature of degrees awarded at University of Minnesota commencements. Doctors' tassels may be black or gold; masters' are black. Bachelor's degree candidates at Minnesota, however, indicate their fields of study by their tassel colors:

College of Agriculture	maize
College of Biological Sciences	golden yellow
Continuing Education and Extension	orange and drab
School of Dentistry	lilac
College of Education	light blue
College of Forestry	maize
General College	crimson and white
College of Home Economics	maize
Law School	purple
College of Liberal Arts	white
School of Management	drab
Medical School	green
School of Nursing	green
College of Pharmacy	olive
School of Public Health	green
Institute of Technology	orange
University College	old gold and white
College of Veterinary Medicine	gray

Gold shoulder epaulets are worn by candidates who are honor students.

After receiving their degrees, holders may wear the academic costume on any appropriate occasion, but they always wear the black tassel, and omit the shoulder insignia. Appropriate academic costumes can be obtained anywhere that academic ceremonies are conducted.

Fall 1983 Graduation Events

College of Agriculture, 8 p.m. Dec. 8
Auditorium, Willey Hall

College of Education, 7:30 p.m. Dec. 12
Northrop Memorial Auditorium

College of Forestry, 5:30 p.m. Dec. 1
Theater, St. Paul Student Center

General College, 7 p.m. Dec. 8
Theater-lecture hall, Coffman Memorial Union

Graduate School, 7:30 p.m. Dec. 11
Northrop Memorial Auditorium

College of Home Economics, 7 p.m. Dec. 9
Willey Hall

College of Liberal Arts, 1 p.m. Dec. 4
Northrop Memorial Auditorium

School of Management, 2 p.m. Dec. 17
Auditorium, Willey Hall

School of Nursing, 1:30 p.m. Dec. 17
Mayo Memorial Auditorium