



UNIVERSITY OF MINNESOTA

*Fall Commencement, 1980*

AUGUST AND DECEMBER GRADUATE SCHOOL  
CANDIDATES FOR DEGREES

## *Board of Regents*

The Honorable Charles H. Casey, D.V.M., West Concord  
The Honorable William B. Dosland, Moorhead  
The Honorable Erwin L. Goldfine, Duluth  
The Honorable Lauris D. Krenik, Madison Lake  
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The Honorable Lloyd H. Peterson, Paynesville  
The Honorable Mary T. Schertler, St. Paul  
The Honorable Neil C. Sherburne, Lakeland  
The Honorable Michael W. Unger, St. Paul

## *Administrative Officers*

C. Peter Magrath, President  
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Stanley B. Kegler, Vice President for Institutional Relations  
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Additional copies of this program are available from the Department of University Relations, S-68 Morrill Hall, 100 Church St. S.E., University of Minnesota, Minneapolis, Minnesota 55455.

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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 twenty-ninth 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 333,000 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 and Landscape Arboretum at Excelsior, 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.

THE 1979 LEGISLATURE appropriated \$443.6 million for the University for the 1979-81 biennium. A financial statement prepared and circulated by the University each year is available to anyone on request.

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

Patricia Ann Joslin, Lakeville

B.S. cum laude '71, M.S. '73, University of Wisconsin, Milwaukee. Major: Educational Administration. Project: Inservice Teacher Education: A Meta-Analysis of the Research. Major Adviser: Prof. Ronald Lambert.

Dennis Ray Wubbena, Bloomington

B.B.A. '71, University of Iowa; M.A. '78, University of Northern Iowa. Major: Vocational Education. Project: Importance and Fulfillment Ratings of Secondary Distributive Education Program Evaluative Criteria. Major Advisers: Profs. Richard Ashmun and Gary McLean.

### Doctor of Musical Arts

Patricia Martin Laliberte, Duluth

B.A. magna cum laude '54, M.A. '73, University of Minnesota. Major: Music. Major Adviser: Prof. Johannes Riedel.

Jerald Dennis Ondrozeck,  
Vermillion, S.D.

B.A. '67, Augustana College; M.F.A. '73, University of Minnesota. Major: Music. Major Adviser: Prof. Bernhard Weisser.

### Doctor of Philosophy

Janna Serina Aarestad, Fargo, N.D.

B.S. summa cum laude '68, Moorhead State University; M.S. '71, St. Cloud State University. Major: Educational Administration. Thesis: Analysis of Teacher Selection/Retention and Student Achievement as Related to Selection Research Incorporated's Teacher Perceiver Interview. Major Adviser: Prof. Vernon Hendrix.

June Granatir Alexander, Cincinnati,  
Ohio

B.A. with high honors '70, B.S. '70, M.A. '71, University of Cincinnati. Major: History. Thesis: The Immigrant Church and Community: The Formation of Pittsburgh's Slovak Religious Institutions, 1890-1914. Major Adviser: Prof. Rudolph Vecoli.

Dorothee Pfiffner Aeppli, St. Paul

Diplom Math. '53, Eidgenossische Technische Hochschule; M.S. '76, University of Minnesota. Major: Statistics. Minor: Mathematics. Thesis: The Concept of Information and Ferguson's Distribution. Major Adviser: Prof. Donald Berry.

Lynne Elizabeth Anderson, St. Paul

B.S. '60, Moorhead State Teachers College; M.S. '71, University of Minnesota. Major: Educational Administration. Thesis: The Effects of Selected District, Program, and Student Variables on Student Performance in Science. Major Adviser: Prof. Van Mueller.

Michael Daniel Albert, Minneapolis

B.S. '69, Pennsylvania State University; M.A. '74, University of Minnesota. Major: Geography. Thesis: Japanese American Communities in Chicago and the Twin Cities. Major Adviser: Prof. Philip Porter.

Stanley Daniel Anderson, Jr.,  
Roseville

A.B. with honor '59, A.M. '62, Wheaton College; B.D. summa cum laude '62, Gordon Divinity School. Major: Philosophy. Minor: History and Philosophy of Education. Thesis: An Analysis of the Meaning of Academic Freedom in American Higher Education, 1860-1920. Major Adviser: Prof. D. B. Terrell.

Donna Marie Johnson Albrecht,

Menomonie, Wis.

B.S. with distinction '68, M.S. '69, Stout State University. Major: Home Economics. Thesis: Perception of Flammability Hazard of Clothing Among Consumers. Major Adviser: Prof. Robert Johnson.

**Donna Day Baird, Park Rapids**

B.A. magna cum laude '58, Macalester College. Major: Ecology. Thesis: Dispersal in the Meadow Voles, *Microtus pennsylvanicus*. Major Adviser: Prof. Elmer Birney.

**David Ben-Sira**

B.S.Ed. '75, University of Houston; M.A. '78, University of Minnesota. Major: Physical Education. Thesis: A Comparison of the Mechanical Characteristics of the Instep Kick Between Skilled Soccer Players and Novices. Major Advisers: Profs. Jacqueline Shick and Lela Stoner.

**James Kasper Benson, Bismarck,  
N.D.**

Ph.B. '63, University of North Dakota; M.A. '70, University of Minnesota. Major: History. Minor: Sociology. Thesis: Irish and German Families and the Economic Development of Midwestern Cities, 1860-1895: St. Paul, Minnesota, as a Case Study. Major Adviser: Prof. Rudolph Vecoli.

**Michael Edward Birdsall, St. Paul**

B.A. summa cum laude '69, University of Minnesota. Major: English. Thesis: Art, Beauty and Morality in the Novels of Iris Murdoch. Major Adviser: Prof. Peter Reed.

**John James Bitgood, St. Paul**

B.V.A. '61, University of Massachusetts; M.S. '75, University of Minnesota. Major: Animal Science. Thesis: Gametogenesis and Zygote Formation in Domestic Fowl (*Gallus domesticus*) With Chromosome Rearrangements. Major Adviser: Prof. Robert Shoffner.

**Mark Anthony Brick, Greenleaf,  
Wis.**

B.S. '72, Wisconsin State University, River Falls; M.S. '75, University of Arizona. Major: Plant Breeding. Thesis: Morphology and Inheritance of Several Root Characteristics in Alfalfa. Major Adviser: Prof. Donald Barnes.

**Thomas Luther Browning,  
Middletown, Md.**

B.S. '67, University of Maryland; M.S. '69, Pennsylvania State University. Major: Agricultural Economics. Minor: Economics. Thesis: Measuring Cattle Breeding Herd Growth and Disappearance Flows and Incorporating Them Into USDA Farm Income and Productivity Measures. Major Adviser: Prof. Willis Peterson.

**Thomas Frank Bumol, Detroit,  
Mich.**

B.S. with distinction '75, University of Michigan. Major: Microbiology. Thesis: Biochemical and Immunological Characterization of Plasma Membrane Thy-1.2 Alloantigen Variant Lymphoma Cell Line. Major Adviser: Prof. Steven Douglas.

**Michael Lee Burwell, Minneapolis**

B.A. '65, University of Minnesota; M.A. '68, Pennsylvania State University; M.A. '76, University of Minnesota. Major: German. Minor: Russian. Thesis: *Theater der Zeit* as a Mirror of GDR Drama, With a Focus on Baierl, Kerndl, Braun, and Muller. Major Adviser: Prof. Frank Hirschbach.

**Stephen Alan Carlson, Minneapolis**

B.A. '60, Gustavus Adolphus College; M.S. '67, Mankato State College. Major: Educational Psychology. Thesis: Effects of Prepractice Reading and Selected Materials on Oral Reading Rates of Learning Disabled, Junior High School Boys. Major Adviser: Prof. Dewey Force, Jr.

**Gayden Fisher Carruth, New  
Brighton**

B.S.Ed. '66, M.E. '69, Mississippi College. Major: Educational Administration. Thesis: Minnesota's Foundation Program: Projected Effects of the Distribution of Selected Maintenance Revenues Upon Fiscal Equity, for Fiscal Years 1980-1983. Major Adviser: Prof. Van Mueller.

**Michael D. Casler, Madison, Wis.**

B.S. with honors '76, University of Illinois; M.S. '79, University of Minnesota. Major: Plant Breeding. Thesis: An Analysis of Forage Yield in Reed Canarygrass: Heritability of Stability Parameters, Factors Influencing Stability, and Yield Prediction From Morphological Characters. Major Adviser: Prof. Arne Hovin.

**Terry Jacqueline Castle, San Diego,  
Calif.**

B.A. summa cum laude '75, University of Puget Sound; M.A. '78, University of Minnesota. Major: English. Thesis: The Insistence of the Letter: Fiction and Experience in the Novels of Samuel Richardson. Major Adviser: Prof. Paul Alkon.

**Keith Kwei-Hang Chan, St. Paul**

B.S. Pharm. '71, Kaohsiung Medical College; M.S. Pharm. '74, North Dakota State University. Major: Pharmaceutics. Thesis: Investigation of the Rabbit as a Model for the Study of Drug Excretion and Metabolism by the Kidney. Major Advisers: Profs. Robin Enever and Kenneth Miller.

**Dong-Ming Chen, Taiwan**

B.S. '72, National Tsing Hua University; M.S. '77, Syracuse University. Major: Mechanical Engineering. Thesis: Analytical Modelling of Two-Temperature Argon Arc Plasmas. Major Advisers: Profs. Subas Patankar and Emil Pfender.

**Tzoo-Shuh Chiang, Taipei, Taiwan**

B.S. '72, National Taiwan University; M.S. '75, University of Wisconsin. Major: Mathematics. Thesis: Large Deviation of Markov Processes. Major Adviser: Prof. Steven Orey.

Jai Won Choi, College Park, Md.  
B.A. '59, Yonsei University; B.S. magna cum laude '66, California Baptist College; M.A. '70, University of Minnesota. Major: Biometry and Health Information Systems. Minor: Statistics. Thesis: Analysis of Categorical Data in Weighted Cluster Sample Survey. Major Adviser: Prof. Richard McHugh.

Dale Larry Christensen, Rochester  
B.Chem. with distinction '71, University of Minnesota. Major: Chemistry. Thesis: Chemical Effects in Ion Scattering Spectrometry. Major Adviser: Prof. Victor Mossotti.

Susan Lee Colby, Wilmette, Ill.  
A.B. '73, Washington University. Major: Educational Psychology. Thesis: A Structural Developmental Analysis of Psychiatry Residents' Development. Major Advisers: Profs. V. L. Erickson and Clyde Parker.

Michael Craig Cranston, Mankato  
B.Math. with distinction '74, University of Minnesota. Major: Mathematics. Minor: Internal. Thesis: On the Tail Sigma-Field of Certain Diffusion Processes. Major Adviser: Prof. Steven Orey.

Timothy John Delmont, Minneapolis  
B.A. '66, St. John's University; M.A. '69, B.S. with high distinction '74, University of Minnesota. Major: Educational Administration. Thesis: Openness in Resource Planning in State Universities. Major Advisers: Profs. Carl Adams and Robert Keller.

Joe C. Dixon, Colorado Springs,  
Colo.  
B.A. '67, St. Olaf College; M.A. '69, Michigan State University. Major: History. Minor: Political Science. Thesis: Defeat and Disarmament: A Study of Military Affairs in Austria, 1918-1921. Major Adviser: Prof. William Wright.

Kenneth Lee Dreher, Mizpah  
B.S. magna cum laude '71, Bemidji State College. Major: Biomedical Engineering. Thesis: Induced Rigidity of Erythrocyte Membranes: A Mechanical and Chemical Assessment. Major Adviser: Prof. Perry Blackshear.

Sandra Runck Edwardson,  
Minneapolis  
B.S.N. magna cum laude '63, St. Olaf College; M.N. '64, University of Washington. Major: Hospital and Health Care Administration. Thesis: Decision Making in Relation to the Type and Location of Care for Children With Terminal Illness. Major Adviser: Prof. Vernon Weckwerth.

Susan Jane Erkel, Stillwater  
B.S. '71, M.S. '72, Mankato State College. Major: Home Economics. Thesis: Work Is Work and Play Is Play: Or Is It? A Study of Safety Clothing Worn by Youth Working in Labor Intensive Programs Funded Under the Youth Employment and Demonstration Projects Act of 1977. Major Advisers: Profs. Michael Baizerman and Joanne Eicher.

Douglas Warren Ernie, Wimbledon,  
N.D.  
B.S. cum laude '73, University of North Dakota; M.S. '75, University of Illinois. Major: Physics. Thesis: Energy Transfer Mechanisms in Gas Mixtures. Major Adviser: Prof. Hendrick Oskam.

Dennis Eugene Feely, Kirksville,  
Md.  
B.S. '71, Pepperdine College. Major: Anatomy. Minor: Zoology. Thesis: Isolation of *Giardia* Trophozoites From Rat Small Intestine: Cytoskeletal Components of Attachments. Major Adviser: Prof. Stanley Erlandsen.

Martin Eugene Ford, State College,  
Pa.  
B.S. with highest distinction '75, Pennsylvania State University. Major: Child Psychology. Thesis: A Multivariate Prediction Study of Social Competence in Adolescence. Major Adviser: Prof. Daniel Keating.

Timothy Joseph Garvey, St. Paul  
B.A. '73, M.A. '76, University of Minnesota. Major: Art History. Minor: American Studies. Thesis: Lee O. Lawrie: Classicism and American Culture, 1919-1954. Major Adviser: Prof. Karal Marling.

Germaine Helen Goetz, River  
Forest, Ill.  
B.A. '55, Rosary College; M.A. '68, Marquette University; M.A. '75, University of Minnesota. Major: Theatre Arts. Thesis: Between Manic and Depressive: A Study of the Five Plays of Graham Greene. Major Advisers: Profs. Virginia Fredricks and D. W. Thompson.

Ney Guzman-G., Cali, Colombia  
M.D. '66, M.P.H. '69, Universidad del Valle; M.S. '72, University of Minnesota. Major: Epidemiology. Thesis: Uterine Cervix. Sexual Factors and Histopathological Structure of the Squamous Cell Cancer. An Epidemiological Study. Major Adviser: Prof. Leonard Schuman.

Julie Marie Hansen, Madison, Wis.  
B.A. '72, University of Wisconsin; M.A. '75, University of Minnesota. Major: Classical Area Studies. Thesis: The Palaeobotany of Franchthi Cave, Greece. Major Adviser: Prof. William McDonald.

Dorothy Kazuko Hatsukami,  
Minneapolis

A.B. with distinction '73, University of California. Major: Psychology. Thesis: Depression and Relapse to Chemical Use in Individuals Treated for Alcohol and Drug Abuse. Major Advisers: Profs. James Butcher and Roy Pickens.

Karen Elena Hawley, Minneapolis

B.E.E. '71, M.B.A. '77, University of Minnesota. Major: Business Administration. Thesis: A Theory of an Outsider's and Insider's Decision to Participate in a Political Issue and Its Implications for the Process of Co-optation. Major Adviser: Prof. Mary Lippitt.

Nancy Kisselburg Henry, St. Paul

B.S. '74, University of Minnesota. Major: Microbiology. Thesis: Studies of the Bactericidal Mechanisms of Human Polymorphonuclear Leukocytes Active Against *Pseudomonas aeruginosa*. Major Adviser: Prof. Beulah Gray.

Brian Gavin Higgins, Johannesburg,  
South Africa

B.S.Eng. '73, M.S.Eng. '75, University of the Witwatersrand. Major: Chemical Engineering. Thesis: Capillary Hydrodynamics and Coating Beads. Major Adviser: Prof. L. E. Scriven.

Richard Guy Holcomb

B.S. with high honor '71, Michigan Technological University; M.S. '75, University of Minnesota. Major: Biometry and Health Information Systems. Minor: Statistics. Thesis: The Sequential Analysis of Multiple Responses in Clinical Trials. Major Adviser: Prof. Eugene Johnson.

Mary Yungman Hurwitz, Crystal

A.B. '73, Cornell University. Major: Biochemistry. Thesis: Cyclic Nucleotide Phosphodiesterases in Human Lymphocytes. Major Adviser: Prof. Ronald Edstrom.

Jenna Rae Kohles Hutchinson,  
Minneapolis

B.A. '75, Hampshire College. Major: Psychology. Thesis: The Relationship of Life Changes and Academic Success and School Adjustment in Kindergarten Children. Major Adviser: Prof. Byron Egeland.

John D. Ipsen, Schenectady, N.Y.

B.S. with distinction '75, Cornell University. Major: Pharmacognosy. Minor: Microbiology. Thesis: Attempts To Detect and Localize Artificially Produced Toxins of *Ceratocystis Ulmi* in Dutch Elm Disease. Major Adviser: Prof. Yusuf Abul-Hajj.

James Harvey Jackson, Jr., San  
Diego, Calif.

B.A. magna cum laude '67, Pasadena College; M.A. '69, University of Minnesota. Major: History. Thesis: Migration and Urbanization in the Ruhr Valley, 1850-1900. Major Adviser: Prof. Otto Pflanze.

Lyle Steven Joffe, Minneapolis

B.E.S. summa cum laude '75, University of Minnesota; M.S. '77, University of Wisconsin. Major: Educational Psychology. Thesis: The Quality of Mother-Infant Attachment and Its Relationship to Compliance With Maternal Commands and Prohibitions. Major Adviser: Prof. Byron Egeland.

Michael Phillips Johnson, Mabel

B.A. '66, M.A. '71, University of Minnesota. Major: Spanish. Thesis: The Social and Political Implications of Quevedo's Scatological Satire. Major Adviser: Prof. Anthony Zahareas.

James Frederick Kamman, St. Louis  
Park

B.A. '73, M.Ag. '76, University of Minnesota. Major: Food Science. Minor: Business Administration. Thesis: Kinetics of Thiamine and Riboflavin Loss in Pasta During Processing and Storage Under Steady-State and Unsteady-State Conditions of Temperature and Water Activity. Major Adviser: Prof. Theodore Labuza.

Sherryl Kleinman, Montreal, Canada

B.A. with honors '75, McGill University; M.A. '76, McMaster University. Major: Sociology. Thesis: Changing Contexts, Rhetoric, and Socialization: The Making of the "New" Minister. Major Adviser: Prof. Gregory Stone.

Glenn Joseph Knowles, St. Paul

B.S. magna cum laude '73, University of Minnesota. Major: Agricultural Economics. Minor: Economics. Thesis: Estimating Utility of Gain Functions for Southwest Minnesota Farmers. Major Adviser: Prof. Clifford Hildreth.

Jolene Mary Koester, Glencoe

B.A. magna cum laude '71, University of Minnesota; M.A. '72, University of Wisconsin. Major: Speech-Communication. Thesis: Rhetorical Views of Female Managers in Popular Self-Help Books. Major Adviser: Prof. Ernest Bormann.

Louis Joseph Labeck, Lancaster, Pa.

A.B. magna cum laude '68, Temple University. Major: Psychology. Thesis: A Comparison of Three Models of Criminal Behavior: Deterrence, Social Control, and a Utility-Based Social Decision Model. Major Adviser: Prof. Robert Wirt.



**James Joseph L'Allier, St. Paul**  
B.S. magna cum laude '69, M.S. '73, Wisconsin State University, River Falls. Major: Education. Thesis: An Evaluative Study of a Computer-Based Lesson That Adjusts Reading Level by Monitoring On-Task Reader Characteristics. Major Adviser: Prof. Robert Tennyson.

**Carol Jean Lammi-Keefe, St. Paul**  
M.S. '71, University of Illinois. Major: Nutrition. Thesis: Aging: Effect of Nutrition on Catalase and Superoxide Dismutase Activities in Skeletal and Cardiac Muscles From Rats. Major Advisers: Profs. Vincent Hegarty and Patricia Swan.

**Ronald Gary Larson, Detroit Lakes**  
B.Chem.E. with high distinction '75, M.S. Chem.E. '77, University of Minnesota. Major: Chemical Engineering. Minor: Mathematics. Thesis: From Molecules to Reservoirs: Problems in Enhanced Oil Recovery. Major Adviser: Prof. H. T. Davis.

**Janice Anne Lawry, Pittsburgh, Pa.**  
B.S. summa cum laude '74, University of Pittsburgh. Major: Psychology. Minor: Child Psychology. Thesis: The Effects of Letter, Letter Order, and Whole Word Transformations on Word Processing. Major Adviser: Prof. David LaBerge.

**Patricia Miller Libbey, Afton**  
B.S. '60, University of Wisconsin; M.A. '61, Harvard University. Major: Educational Psychology. Thesis: Teachers' Conceptions of Discipline: A Cognitive-Developmental Framework. Major Adviser: Prof. Norman Sprinthall.

**William Daryl Lindsay, Saskatoon, Canada**  
M.B.A. '71, University of Manitoba. Major: Business Administration. Minor: Psychology. Thesis: Internal Auditors' Feelings of Competence. Major Adviser: Prof. R. G. Berryman.

**Mary Ann Litterman, Minneapolis**  
B.S. '74, University of Minnesota. Major: Agricultural Economics. Minor: Economics. Thesis: Energy Substitution Possibilities in U.S. Manufacturing and Agriculture. Major Adviser: Prof. Lee Martin.

**James Cooper Litts, Medford, Ore.**  
B.S. '76, Oregon State University; M.S. '79, University of Minnesota. Major: Botany. Minor: Biochemistry. Thesis: Phytochrome: A Purification and Partial Characterization. Major Advisers: Profs. Jerome Jendrisak and Douglas Pratt.

**Frederick Gregory Lopez, Miami, Fla.**  
B.A. maxima cum laude '69, St. Edward's University; M.A. '76, University of Minnesota. Major: Psychology. Thesis: Effects of Direct and Paradoxical Instructions on Client and Relationship Variables in Brief Counseling. Major Adviser: Prof. Rodney Loper.

**Randolph Horner Lundberg**  
A.B. magna cum laude '68, S.M. '72, Harvard University. Major: Philosophy. Thesis: The Comprehensive Imperative: A Vision of Moral Principles. Major Adviser: Prof. Rolf Sartorius.

**Maria Juliana Maestas y Moores, Espanola, N.M.**  
B.A. '58, University of Denver; M.S. '59, Gallaudet College. Major: Educational Psychology. Thesis: A Descriptive Study of Communication Modes and Pragmatic Functions Used by Three Prelinguistic, Profoundly Deaf Mothers With Their Infants One to Six Months of Age in Their Homes. Major Adviser: Prof. Rosalyn Rubin.

**Sheila Goodstein Magil, Boston, Mass.**  
B.A. '71, Carnegie-Mellon University. Major: Biochemistry. Thesis: The Effect of Fluoride on the Lipids in Mouse Serum, Red Blood Cells, Bone and Bone Cell Cultures. Major Adviser: Prof. Leon Singer.

**James Francis McAndrew, Scranton, Pa.**  
B.S. '73, University of Scranton. Major: Educational Psychology. Thesis: The Relative Efficacy of Covert and Overt Conditioning Procedures in Modifying Verbal and Pain Tolerance Behavior. Major Advisers: Profs. Douglas Anderson and Ardyth Norem-Hebeisen.

**Mushtaq Ahmed Memon, Shikarpur, Pakistan**  
B.V.Sc., B.Sc. '71, University of Punjab; M.Sc. with honours '74, University of Agriculture, Lyallpur. Major: Theriogenology. Thesis: Effects of Prostaglandins on Ram Spermatozoa. Major Adviser: Prof. B. K. Gustafsson.

**Ruth Ann Krueger Meyer, Columbus, Ohio**  
B.F.A. '63, University of Cincinnati; M.A. '68, Brown University. Major: Art History. Thesis: Fernand Leger's Mural Paintings: 1922-1955. Major Adviser: Prof. Sidney Simon.

**Paul E. Micevych, St. Paul**  
B.A. cum laude '76, College of St. Thomas. Major: Anatomy. Thesis: Interaction of Endogenous Opioid and Other Neuroactive Peptides in Feline Hypothalamus: An Immunofluorescent Study. Major Adviser: Prof. Robert Elde.

**Joseph Anthony Micucci, Staten Island, N.Y.**  
A.B. magna cum laude and with distinction '74, Cornell University. Major: Psychology. Thesis: An Investigation of Linear and Configural Prediction With the MMPI. Major Adviser: Prof. Irving Gottesman.

James Earl Miller, Oelwein, Iowa  
B.S. with distinction '76, M.S. '77, Iowa State University. Major: Plant Breeding. Thesis: Effect of the *bm<sub>3</sub>* Allele on the Agronomic Performance of Maize. Major Adviser: Prof. Jon Gadelmann.

Stephen Arthur Mitchell, Redding, Calif.

A.B. with distinction '74, University of California; M.A. '77, University of Minnesota. Major: Scandinavian. Thesis: Dialogue in the Early Swedish Novel: Studies in the Presentation of Speech From Cederborgh to Flygare-Carlen. Major Adviser: Prof. Nils Hasselmo.

Keith Lowell Monson, St. Paul

B.Met.E. with distinction '73, University of Minnesota. Major: Biomedical Engineering. Minor: Chemical Engineering. Thesis: Subcellular X-Ray Microanalysis of Freeze-Dried Rat Soleus Muscle. Major Advisers: Profs. H. T. Davis and Perry Blackshear.

Lester Parker Monts, Goleta, Calif.

B.A. '70, Arkansas Polytechnic College; M.M. '72, University of Nebraska. Major: Music. Thesis: Music in Vai Society: An Ethnomusicological Analysis of a Liberian Ethnic Group. Major Adviser: Prof. Johannes Riedel.

Mark Stephen Mosko, Long Beach, Calif.

B.A. '70, University of California; M.A. '73, University of Minnesota. Major: Anthropology. Thesis: The Legacy of Akaisa: Categories, Relations and Homologies in Bush Mekeo Culture. Major Adviser: Prof. Stephen Gudeman.

Bruce Matthew Moskowitz, New York, N.Y.

B.S. '74, University of Arizona. Major: Geophysics. Thesis: A Laboratory Study of the Magnetic Properties of Synthetic Titanomagnetites: Implications for the Magnetic Properties of Ocean Basalts. Major Adviser: Prof. Subir Banerjee.

Michael James Mummey, Indianapolis, Ind.

B.S.Ch.E. '75, Purdue University. Major: Chemical Engineering. Thesis: Adsorption and Reaction on Clean Polycrystalline Platinum at Near-Atmospheric Pressures. Major Adviser: Prof. Lanny Schmidt.

Michael Paul Murphy, Rochester, N.Y.

B.A. '69, St. John Fisher College; M.A. '73, University of Minnesota. Major: American Studies. Thesis: J. F. Powers: The Burden of an American Catholic Writer. Major Adviser: Prof. David Noble.

Kakambi Veerappa Nagaraja, Bangalore, India

B.V.S. '66, M.V.Sc. '69, University of Agricultural Sciences, Bangalore. Major: Veterinary Microbiology. Thesis: Immune Response of Turkeys Against Turkey Coronaviral Enteritis (Bluecomb). Major Adviser: Prof. Benjamin Pomeroy.

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B.S. '44, University of Dayton; M.A. '73, University of Minnesota. Major: Speech-Communication. Minor: History. Thesis: Gibbons, Ireland, Keane: The Evolution of a Liberal Catholic Rhetoric in America. Major Adviser: Prof. Ernest Bormann.

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Ir. '71, Institut Pertanian Bogor; M.S. '77, University of Minnesota. Major: Soil Science. Thesis: Characterization of Soils With Gypsum Concentration and Their Influence on Crop Productivity in Redwood County, Minnesota. Major Adviser: Prof. Richard Rust.

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B.A. magna cum laude '75, Winona State University. Major: Anatomy. Thesis: Seasonal Changes in Prolactin Physiology in White-Tailed Deer (*Odocoileus Virginianus Borealis*). Major Adviser: Prof. Jonathan Parsons.

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Psychology. Thesis: The Relative Effectiveness  
of Different Reinforcers in Training Self-Help  
Skills Among Severely Retarded Persons in a Resi-  
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Social Work. Thesis: Predictors of the Potential  
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Effect of Instruction in Reading, Writing, and Pro-  
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Threshold Phenomena in Nonlinear Diffusion  
Equations. Major Adviser: Prof. Donald Aronson.

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B.S. '73, M.S. '75, University of Minnesota. Major:  
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fluence of Maternal Nutrition on Some Parameters  
of Carbohydrate Metabolism and Insulin Status in  
the Pregnant and Lactating Rat. Major Adviser:  
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B.A. cum laude '66, St. Olaf College; M.A. '69,  
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Thesis: Interest Group Success in the Congres-  
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and Perceptions of Interest Group Leaders. Major  
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A.B. '58, Augustana College; M.A. '63, State University of Iowa. Major: Physical Education. Minor: American Studies. Thesis: The Significance of Dance in 16th-Century Courtesy Literature. Major Advisers: Profs. Ayers Bagley and Jeralyn Plack.

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B.S. '72, University of Arkansas; M.S. '74, University of Nebraska. Major: Plant Physiology. Thesis: Mitochondrial Biogenesis During Fungal Spore Germination: Catalytic Activity, Composition, and Subunit Biosynthesis of Oligomycin-Sensitive ATPase in *Botryodiplodia*. Major Adviser: Prof. Robert Brambl.

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B.A. cum laude '74, Kenyon College; M.S. '77, University of Minnesota. Major: Plant Pathology. Thesis: Ecology and Host Effects of Soil Fungi Associated With Rhizobium Nodules of Soybean. Major Adviser: Prof. B. Kennedy.

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B.A. '70, St. Cloud State College; M.S. '72, University of Minnesota. Major: Plant Pathology. Thesis: Rhizosphere Ecology and Disease Control in *Pisum Sativum* by Seed Treatment With *Penicillium Oxalicum*. Major Adviser: Prof. Thor Kommedahl.

### Doctor of Philosophy in Neurology

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B.A. '68, Texas Technological College; M.D. '72, Baylor College of Medicine. Major: Neurology. Thesis: Smooth Pursuit and Saccadic Eye Movements in Dementia. Major Adviser: Prof. Joseph Resch.

### Doctor of Philosophy in Psychiatry

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B.A. summa cum laude '73, M.D. '76, University of Minnesota. Major: Psychiatry. Thesis: A Comparison of Human Muscarinic Cholinergic Receptor Response to a Number of Psychotropics Utilizing the Radiolabeled Antagonist, (<sup>3</sup>H)-Quinuclidinyl Benzilate. Major Advisers: Profs. Leonard Heston and Vicente Tuason.

### Master of Architecture

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B.S. '78, University of Wisconsin, Milwaukee. Major: Architecture. Thesis: City Center—Appleton, Wisconsin. Major Adviser: Prof. Roger Clemence.

Paul Gregory Hanegraaf, Appleton, Wis.  
B.S. '78, University of Wisconsin. Major: Architecture. Thesis: The Outagamie County Government Center in Appleton, Wisconsin. Major Adviser: Prof. Roger Clemence.

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B.A. '78, University of Minnesota. Major: Architecture. Thesis: Luxury Hotel, Twin Cities. Major Adviser: Prof. Roger Clemence.

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B.A. '73, University of Wyoming. Major: Architecture. Thesis: A Recreational Sports Facility for the St. Paul Campus of the University of Minnesota. Major Adviser: Prof. Kay Lockhart.

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B.A. '74, Colorado College. Major: Architecture. Thesis: Performing Arts Center, Hudson, Wisconsin. Major Adviser: Prof. Ralph Rapson.

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### Master of Arts

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B.A. '68, B.Arch. '71, University of Minnesota. Major: Anthropology. Thesis: *Image of Housing, Minneapolis: A Limited Study of Urban Residents' Attitudes and Values*. Major Adviser: Prof. Harvey Sarles.

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B.S. '75, University of Missouri. Major: Physical Education. Minor: Educational Psychology. Thesis: Effects of Heavy Resistance, Low Repetition Training on Strength and Endurance in Young Adult Women. Major Adviser: Prof. G. A. Stull.
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## Master of Arts

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### **Master of Business Administration** UNIVERSITY OF MINNESOTA, DULUTH

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Carroll Herbert Melby  
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Patricia Doyle Corner  
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### **Master of Business Taxation**

Richard J. Fadgen, Fridley  
B.S.B. with high distinction '77, University of Minnesota. Major: Business Taxation. Major Adviser: Prof. Frederick Jacobs.

Robert F. Faisant, Plymouth  
B.S. '61, Canisius College. Major: Business Taxation. Major Adviser: Prof. Frederick Jacobs.

### **Master of Chemical Engineering**

Ronald Lynn Miller, Minnesota  
Lake  
B.S. '67, Hamline University. Major: Chemical Engineering. Project: Applications of Thermal Analysis to the Characterization of Adhesives. Major Adviser: Prof. William Ranz.

### **Master of Civil Engineering**

Robert James Benke, New Brighton  
B.C.E. '68, University of Minnesota. Major: Civil Engineering. Project: Traffic Condition Grade Evaluation. Major Adviser: Prof. Matthew Huber.

Terry Lee Pennaz, New Brighton  
B.C.E. '69, University of Minnesota. Major: Civil Engineering. Project: The Use of Urban Runoff Models To Design Storm Sewer System. Major Adviser: Prof. C. E. Bowers.

## Master of Fine Arts

Patrice O'Sullivan Alkire, Eden

Prairie  
B.A. '74, University of Denver. Major: Theatre Arts. Major Adviser: Prof. Elizabeth Nash.

Michael Pat Barsanti, Port Edwards,  
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B.S. '78, University of Wisconsin. Oshkosh. Major: Studio Arts. Major Adviser: Prof. Warren Mackenzie.

Barbara Ann Begich, Hastings

B.A. '75, College of St. Teresa. Major: Theatre Arts. Major Adviser: Prof. H. L. Adey.

Sara Helen Bublitz, Cincinnati,  
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B.Mus.A. with distinction '77, University of Michigan. Major: Theatre Arts. Major Adviser: Prof. Robert Moulton.

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B.S. '71, Northwestern University. Major: Theatre Arts. Major Adviser: Prof. C. L. Brockman.

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B.A. '78, Pomona College. Major: Music. Major Adviser: Prof. Roy Schuessler.

Lynn Marie Erickson, Chisholm

B.A. '78, Bethel College. Major: Music. Minor: Music Education. Major Adviser: Prof. David Baldwin.

Robert Andrew Fornander, Avon,  
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B.S. '75, St. Cloud State College. Major: Theatre Arts. Major Adviser: Prof. H. L. Adey.

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Bonita L. Wahl, Minneapolis

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## Master of Industrial Engineering

Bernard Kwong-Fai Au, Hong Kong

B.S. '77, M.S.E. '79, Washington State University. Major: Industrial Engineering. Project: Design of Computer Facilities for Empirical Studies in Man-Machine Systems. Major Adviser: Prof. Tarald Kvalseth.

## Master of Planning

Rodney Charles Kopp, Jamestown,  
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B.A. summa cum laude '76, Moorhead State University. Major: Planning. Major Adviser: Prof. Calvin Bradford.



## Master of Science

Ezzaldin Omar Abusteit, Cairo,

Egypt

B.Sc. '77, Cairo University. Major: Horticulture. Thesis: Effect of Diploid and Tetraploid Potato Genotypes. Major Adviser: Prof. Florian Lauer.

Walid Najem Al-Hashimi, Baghdad,

Iraq

B.S.D. '71, University of Baghdad. Major: Dentistry. Minor: Anatomy. Thesis: A SEM Evaluation of Dentinal Surfaces, Following Instrumentation With Chelating and Irrigating Agents. Major Adviser: Prof. James Jensen.

Mohammad Jasem Alostaz, Kuwait,

Kuwait

B.S. cum laude '77, Syracuse University. Major: Mechanics. Major Adviser: Prof. William Warner.

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Wayne, Ind.

B.S. cum laude '78, Rose-Hulman Institute of Technology. Major: Mathematics. Major Adviser: Prof. John Baxter.

Peter John Aube, Faribault

B.S. with high distinction '78, University of Minnesota. Major: Forestry. Major Adviser: Prof. Dietmar Rose.

Waiman R. Auyoung, Hong Kong

B.S. '76, University of Wisconsin, River Falls. Major: Food Science. Major Adviser: Prof. Oscar Snyder.

William E. Bangs, Palmyra, Pa.

B.S. '75, Lebanon Valley College. Major: Food Science. Minor: Statistics. Thesis: Spray Drying of Model Food Systems; Retention of Selected Lipid Oxidation and NEB Compounds. Major Adviser: Prof. Gary Reineccius.

Nancy Elizabeth Bastien, Union,

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B.A. '77, Douglass College. Major: Genetics. Major Adviser: Prof. D. P. Snustad.

Janet Helen Bates, Laguna Niguel,

Calif.

A.B. '76, Stanford University. Major: Nutrition. Major Adviser: Prof. Craig McClain.

David Martin Beckmann, Eden

Prairie

B.A. '77, University of Minnesota. Major: Physiology. Major Adviser: Prof. Eugene Grim.

Donald Vinton Bennett, Chaska

B.S. '75, University of Minnesota. Major: Entomology. Thesis: The Semiaquatic Hemiptera of Minnesota. Major Adviser: Prof. Edwin Cook.

Joan Ann Bernhardt, Chicago, Ill.

B.S. '73, De Paul University. Major: Medical Technology. Minor: Biochemistry. Thesis: High Performance Liquid Chromatographic Method for the Determination of Methotrexate in Plasma. Major Adviser: Prof. Robert Bridges.

Abdellatif Berre, Marrakech,

Morocco

Diplome Ag.Gen. '78, Institut Agronomique et Veterinaire. Major: Horticulture. Thesis: The Effect of Prestorage Heat and Calcium Treatment on the Quality of Some Apple Cultivars During Subsequent Cold Storage. Major Adviser: Prof. Shirley Munson.

Mark John Bishop

B.S.E.H. '77, University of Georgia. Major: Environmental Health. Major Adviser: Prof. Conrad Straub.

Janet Larson Braun, Des Moines,

Iowa

B.S.N. '74, University of Iowa. Major: Public Health. Major Adviser: Prof. E. C. Pflug.

Thomas Edward Burk,

Independence, Iowa

B.S. with distinction '76, Iowa State University. Major: Statistics. Major Adviser: Prof. David Hinkley.

David Gerard Butler

B.S. cum laude '75, University of Minnesota. Major: Botany. Major Adviser: Prof. Thomas Soulen.

Marjana Frances Nys Callery, St.

Paul

B.A. '65, College of St. Catherine. Major: Nursing. Major Adviser: Prof. Evangeline Gronseth.

Kit Lam Cheong, Barquisimeto,

Venezuela

B.C.S. with distinction '77, University of Minnesota. Major: Computer and Information Sciences. Major Adviser: Prof. William Munro.

Robert Eugene Childs, Minneapolis

B.S.N. with distinction '78, University of Minnesota. Major: Nursing. Major Adviser: Prof. Floris King.

Terrance William Cundy, Richfield

B.S. with high distinction '78, University of Minnesota. Major: Forestry. Major Adviser: Prof. Kenneth Brooks.

Steven John Czaplewski, Franklin,  
Wis.

B.S. '77, University of Wisconsin. Major: Plant Breeding. Minor: Statistics. Thesis: Variability of the Stay-Green Duration for Five Plant Structures in Barley. Major Adviser: Prof. Donald Rasmusson.

Maxcy DeWitt Daggett III, St. Paul  
B.A. magna cum laude '78, Macalester College. Major: Mineralogy and Petrology. Minor: Chemistry. Thesis: The Structure and Petrology of the Cedar Mountain Complex, Redwood County, Minnesota. Major Adviser: Prof. Paul Weible.

Martha Aguirre de Garcia, Bogotá,  
Colombia

Licenciada '73, Universidad de los Andes. Major: Animal Physiology. Thesis: Effects of Dialyzable Diffusates From Milk, Egg Yolk and Seminal Plasma on Freezability of Bovine Spermatozoa. Major Adviser: Prof. Edmund Graham.

Jacqueline Dexter

A.B. '67, Gordon College. Major: Nursing. Major Adviser: Prof. Elaine Mansfield.

Joan Josephine Dizikes, Minneapolis

B.S. '75, University of Illinois. Major: Environmental Health. Major Adviser: Prof. Donald Vesley.

Sarah Anne Duerr

B.A. with distinction '76, University of Colorado. Major: Nutrition. Major Adviser: Prof. Margaret Doyle.

Mohamed El-Otmami, Tafraout,  
Morocco

Diplome Ag. '78, Institut Agronomique et Veterinaire Hassan II. Major: Horticulture. Thesis: Evaluation of Seedlings of Six *Citrus* Rootstock Cultivars for Tolerance to Calcareous Conditions. Major Adviser: Prof. Cecil Stushnoff.

James Erwin Evans, Minneapolis

B.A. magna cum laude '76, Carleton College. Major: Hydrogeology. Minor: Ecology. Thesis:  $^{210}\text{Pb}$  Geochronology in Lake Superior: Sedimentation Rates, Organic Carbon Deposition, Sedimentary Environments, and Post-Depositional Processes. Major Adviser: Prof. Thomas Johnson.

Diane Beth Friedman, Orangeburg,  
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B.S. '76, Cornell University. Major: Nutrition. Major Adviser: Prof. Lura Morse.

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B.S. '77, Mankato State University. Major: Nursing. Major Adviser: Prof. Ellen Egan.

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B.S. magna cum laude '76, College of St. Benedict. Major: Food Science. Major Adviser: Prof. Elmer Thomas.

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B.S. cum laude '72, Mankato State College. Major: Nursing. Major Adviser: Prof. Elaine Mansfield.

Cole Richard Gustafson, Center  
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B.Ag.B.A. with high distinction '78, University of Minnesota. Major: Agricultural Economics. Thesis: Optimum Production Adjustments of a Southern Minnesota Cash Grain Farm to Changing Energy Supplies. Major Adviser: Prof. Vernon Eidman.

Jennifer Lee Harris, Tucson, Ariz.

B.S. with high distinction '76, University of Arizona. Major: Nursing. Major Adviser: Prof. Floris King.

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B.S.N. magna cum laude '76, University of Wisconsin, Eau Claire. Major: Nursing. Major Adviser: Prof. Ellen Egan.

Alvin Kiyomi Hayashi, Fresno,  
Calif.

B.S. '73, D.D.S. '73, University of California, San Francisco. Major: Dentistry. Thesis: The Application of Filled Poly (Ethyl Methacrylate) Gels for Endodontic Core Filling Materials. Major Adviser: Prof. James Jensen.

John Robert Haynes, Woodridge,  
Ill.

B.S. '78, University of Illinois. Major: Genetics. Major Adviser: Prof. Robert Herman.

David Michael Henneberry,  
Renville

B.S. '78, University of Minnesota. Major: Agricultural Economics. Major Adviser: Prof. Philip Raup.

Jon Bradley Hochalter

B.S. '74, University of Minnesota. Major: Biochemistry. Minor: Chemical Engineering. Thesis: Carnitine Biosynthesis: The Fission of 6-N-Trimethyl-L-Lysine To Form L-Carnitine and Glycine. Major Adviser: Prof. Lavell Henderson.

Timothy Walter Hoel, Minneapolis

B.S. '74, Carleton College. Major: Computer and Information Sciences. Major Adviser: Prof. William Franta.

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B.S. '75, South Dakota State University. Major: Nursing. Major Adviser: Prof. Ellen Egan.
- Howard Michael Hoganson, St. Anthony Village  
B.S. with high distinction '77, University of Minnesota. Major: Operations Research. Major Adviser: Prof. S. R. Arora.
- Emily Esther Hoover, Milford, Mich.  
B.S. with high honor '78, University of Michigan, East Lansing. Major: Horticulture. Thesis: Low Oxygen as a Means of Moderating Fruit Effects on Photosynthesis. Major Adviser: Prof. Mark Brenner.
- Rosemary Kay Husa, Lakeland  
B.S.N. with distinction '74, University of Minnesota. Major: Nursing. Major Adviser: Prof. Ellen Egan.
- Barbara Lee Jahnke, Rochester  
B.S. '69, University of Wisconsin. Major: Nursing. Major Adviser: Prof. Evangeline Gronseth.
- Raymond Lee Jermstad, St. Paul  
B.S. '73, University of Wisconsin, Madison. Major: Hospital Pharmacy. Major Adviser: Prof. Hugh Kabat.
- Aniamma V. Johny, Kerala, India  
B.S. '72, University of Poona. Major: Nursing. Major Adviser: Prof. M. I. Harris.
- James Alan Jorgenson, International Falls  
B.S. Pharm. with high distinction '77, University of Minnesota. Major: Hospital Pharmacy. Major Adviser: Prof. Hugh Kabat.
- Antony W. Kanczewski  
Diploma '54, Polytechnic School of Warsaw; Diploma '57, Warsaw University. Major: Computer and Information Sciences. Minor: Mathematics. Thesis: Dirichlet's Problem for Poisson's Equation in a Rectangle-Analog Versus Digital Error Analysis. Major Adviser: Prof. Marvin Stein.
- Emanuel Ezra Katz, Philadelphia, Pa.  
B.S. with highest distinction '78, Pennsylvania State University. Major: Food Science. Thesis: The Effect of Water Activity on the Textural Quality of Dry Cereal and Starch Based Snack Food Products. Major Adviser: Prof. Theodore Labuza.
- Linda Olson Keller, Burnsville  
B.S.N. magna cum laude '74, St. Olaf College. Major: Public Health. Major Adviser: Prof. E. C. Pflug.
- Gail Catherine Kinsey, Rochester  
B.S. '67, College of St. Teresa. Major: Nursing. Major Adviser: Prof. Mariah Snyder.
- Howard Herbert Kuff, Minneapolis  
B.A. summa cum laude '78, Northland College. Major: Mathematics. Major Adviser: Prof. Gebhard Fuhrken.
- Sharon Joan Oldham Lambeth, Grand Forks, N.D.  
B.S. '63, University of Missouri. Major: Nursing. Thesis: An Exploratory Study of the Factors Utilized by Patients, Nurses, and Physicians in Determination of Dying. Major Adviser: Prof. M. I. Harris.
- Margaret Anderson Laws, Rochester  
B.S.N. '60, Catholic University of America; M.A. '77, University of Minnesota. Major: Nursing. Major Adviser: Prof. Mariah Snyder.
- John Christopher Ligas, Birmingham, Mich.  
D.D.S. '78, University of Michigan. Major: Dentistry. Thesis: Testing Elastic Properties of Segmented Polyurethane Thread. Major Adviser: Prof. Frank Worms.
- Vincent Ka Lin Lo, Hong Kong  
B.A. '77, University of St. Thomas. Major: Chemistry. Minor: Internal. Thesis: Triphenylmethylum and Tris-(p-Bromophenyl) Ammoniumyl Ion Induced Cyclization Reactions. Major Adviser: Prof. Thomas Hoye.
- Edward Herbert Loesch, Northfield  
B.A. summa cum laude '76, Concordia College. Major: Botany. Thesis: Regulation of Two Hydroglases in *Schizophyllum commune*. Major Adviser: Prof. Iris Charvat.
- Harald Christian Lyche  
B.S. summa cum laude '78, University of Wisconsin, Green Bay. Major: Agricultural Economics. Major Adviser: Prof. Wilbur Maki.
- Desiree Monica Marchand  
B.S. Pharm. '78, Xavier University. Major: Hospital Pharmacy. Major Adviser: Prof. Hugh Kabat.
- Eduardo Martinez-Yrizar, Mexico  
Vet. Med. Zoo. '74, La Universidad Nacional Autonoma de Mexico. Major: Theriogenology. Thesis: The Effects of Estrogen Administration in the Absorption of Antibiotics After Intrauterine Therapy. Major Adviser: Prof. Bradley Seguin.
- Mark McKone, Cresco, Iowa  
B.S.S. '76, Cornell College. Major: Ecology. Minor: Statistics. Thesis: The Effect of Nutrients on Competition in Old Field Plants. Major Adviser: Prof. G. D. Tilman.

**Kathleen Ann Menard, St. Paul**  
B.A. '74, University of Iowa. Major: Nursing. Major Adviser: Prof. Kathleen Maykoski.

**Mohamed Omar Mohamed, Tripoli, Libya**  
B.S. '75, Alfateh University. Major: Food Science. Thesis: The Feasibility of Manufacturing Stirred Curd-Colby Cheese From: 1. Concentrated Milk. 2. Reconstituted Nonfat Dry Milk and Vegetable Oils. Major Adviser: Prof. Howard Morris.

**Robin Reading Mosleth, Rochester**  
B.S. '77, College of St. Teresa. Major: Nursing. Major Adviser: Prof. Verona Gordon.

**Elaine Clara Nelson, Sioux Falls, S.D.**  
B.A. '71, B.S. '76, South Dakota State University, Brookings. Major: Nursing. Major Adviser: Prof. Diane Kjervik.

**Errol Reeve Nezon, Winnipeg, Manitoba, Canada**  
D.M.D. '76, University of Manitoba. Major: Dentistry. Thesis: Prevalence of Certain Plaque Organisms in Cystic Fibrosis Patients. A Clinical/Microbiological Investigation. Major Adviser: Prof. Louise Messer.

**Susan Ann Nixon, Minneapolis**  
B.S.N. with distinction '77, University of Virginia. Major: Nursing. Major Adviser: Prof. Sharon Rising.

**David Carl O'Brien, St. Paul**  
B.S. with distinction '75, University of Minnesota. Major: Forestry. Minor: Business Administration. Major Adviser: Prof. Steven Sinclair.

**Marilyn Rae Olmstead, Fridley**  
B.S.P.N. with distinction '53, University of Minnesota. Major: Nursing. Major Adviser: Prof. Sharon Rising.

**Steven Paul Olson, Duluth**  
B.S. '77, University of Minnesota. Major: Forestry. Major Adviser: Prof. Bruce Brown.

**David Bruce Opp, Minneapolis**  
B.A. '70, Macalester College; B.S.B. '77, M.B.A. '79, University of Minnesota. Major: Agricultural Economics. Major Adviser: Prof. Glenn Nelson.

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D.V.M. '75, La Universidad Nacional Autonoma de Mexico. Major: Veterinary Medicine. Major Adviser: Prof. Phillip Ogburn.

**Robert Jay Palermo, New York, N.Y.**  
B.A. magna cum laude '77, Queens College. Major: Mathematics. Major Adviser: Prof. Hillel Gershenson.

**Irene Kulesa Patrek, Yonkers, N.Y.**  
B.S. '73, Iona College. Major: Environmental Health. Major Adviser: Prof. Donald Barber.

**JoAnn Paulson, Ames, Iowa**  
B.S. '72, Iowa State University; M.S. '78, University of Minnesota. Major: Agricultural Economics. Major Adviser: Prof. Willard Cochrane.

**Yongyoot Prachoomdang, Ubon, Thailand**  
B.E.D. '70, Sri Nakharinwiroth University; M.S. '75, Chulalongkorn University. Major: Physics. Major Adviser: Prof. Jonathan Rosner.

**John Richard Raines, St. Paul**  
B.A. cum laude '70, Carleton College; M.D. '74, Northwestern University. Major: Biometry and Health Information Systems. Major Adviser: Prof. Lynda Ellis.

**Jack Michael Raisanen**  
B.S. with high honor '77, Michigan Technological University. Major: Physiology. Minor: Physics. Thesis: The Late Receptor Potential of the Ground Squirrel Retina. Major Adviser: Prof. Richard Purple.

**Christine Ann Ribic, Chicago, Ill.**  
B.S. with high distinction '76, Colorado State University. Major: Ecology. Thesis: Fall Movements and Activity Patterns of the Sea Otters (*Enhydra lutris*) in California. Major Adviser: Prof. Donald Siniff.

**Stephen Clyde Sadler, Boulder, Colo.**  
B.S. '74, Memphis State University. Major: Environmental Health. Major Adviser: Prof. Harold Paulus.

**Raul O. Samayoa-Pineda, Tegucigalpa, Honduras**  
Ing.For. '76, Universidad Austral de Chile. Major: Forestry. Major Adviser: Prof. Robert Erickson.

**Wayne M. Sames, Bloomington**  
B.S. with distinction '73, University of Minnesota. Major: Forestry. Major Adviser: Prof. Lawrence Merriam.

**Sudarwohadi Sastrosiswojo, Indonesia**  
Ir. '69, Universitas Padjadjaran. Major: Entomology. Minor: Plant Pathology. Thesis: Resurgence of Green Peach Aphid Following Application of Insecticides to Potatoes. Major Adviser: Prof. Edward Radcliffe.

**Mary Catherine Schneeberger, Minneapolis**  
B.S. '73, Loretto Heights College. Major: Nursing. Major Adviser: Prof. Mitzi Duxbury.

Janet Keane Schriener, Fargo, N.D.  
B.U.S. '75, M.S. '78, North Dakota State University. Major: Nursing. Thesis: The Relationship Between Educational Level of Nurse Educators and Professionalism. Major Adviser: Prof. M. I. Harris.

Mary Helen Shimp, Minnetonka  
B.S. '67, College of St. Teresa. Major: Nursing. Major Adviser: Prof. Ellen Egan.

Darin Ray Silkworth, Bessemer,  
Mich.  
B.S. with honor '77, Michigan State University. Major: Soil Science. Minor: Forestry. Thesis: Leaching Losses of Nutrients Following Whole Tree Harvesting of Aspen. Major Adviser: Prof. David Grigal.

Margarita Silva, Mexico City,  
Mexico  
D.D.S. '77, Universidad Tecnologica de Mexico. Major: Dentistry. Thesis: Evaluation of Marginal Leakage of Amalgam Restorations by Microscopy and Spectrophotometry. Major Adviser: Prof. Louise Messer.

Sharon Lucille Skogen  
B.A. '78, College of St. Catherine. Major: Nursing. Major Adviser: Prof. Marilyn Sime.

Joseph Michael Sprafka, St. Paul  
B.A. '75, University of Minnesota. Major: Environmental Health. Major Adviser: Prof. Conrad Straub.

Steven Philip Swanson, Hopkins  
B.A. '75, University of Minnesota. Major: Plant Pathology. Minor: Chemistry. Thesis: Characterization of Metabolites of T-2 Toxin in Cultures of *Fusarium tricinctum*. Major Adviser: Prof. Chester Mirocha.

Fazal M. A. Tagadawala, Bangalore,  
India  
B.V.Sc. '78, University of Agricultural Sciences, Bangalore. Major: Animal Science. Minor: Biochemistry. Thesis: Biochemical and Physiological Changes in Turkeys During Aflatoxicosis, and Effect of Vitamin-Electrolyte Therapy on Performance. Major Adviser: Prof. Paul Waibel.

Susan Maric Tomlinson, Chicago,  
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A.B. summa cum laude '75, University of Illinois. Major: Nutrition. Major Adviser: Prof. Irvin Liener.

Jeri Lou Tunnell, Woodbine, Iowa  
B.A. cum laude '71, Augustana College. Major: Nursing. Major Adviser: Prof. Mariah Snyder.

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B.A. cum laude '68, University of Minnesota. Major: Mathematics. Major Adviser: Prof. Donald Aronson.

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B.S. '76, Mount Mary College. Major: Nutrition. Major Adviser: Prof. Margaret Doyle.

Janice Elaine Voelker, Pigeon,  
Mich.  
B.S. with honor '75, Michigan State University. Major: Nutrition. Major Adviser: Prof. Lura Morse.

Steven Russell Wann, St. Paul  
Major: Chemistry. Thesis: A Test of the Limits for the Concerted Acid-Catalyzed Hydrolysis of Acetals. Major Adviser: Prof. Maurice Kreevoy.

Suzanne Margaret Weisser, Leola,  
S.D.  
B.S. '76, South Dakota State University. Major: Nursing. Major Adviser: Prof. Elaine Mansfield.

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B.S. with high distinction '78, University of Minnesota. Major: Forestry. Major Adviser: Prof. Merle Meyer.

Susan Joan Wyble, Houghton,  
Mich.  
B.A. '77, College of St. Catherine. Major: Public Health. Major Adviser: Prof. Marilee Miller.

Kathlean Cain Zinnel, Bloomington  
B.S. '76, University of Minnesota. Major: Biology. Thesis: Behavior of Walleye Pike in Experimental Channels as Monitored by a Micro-Computer Utilizing Radio-Telemetry. Major Adviser: Prof. John Tester.

## Master of Science

UNIVERSITY OF MINNESOTA, DULUTH

James Roger Baker  
B.M. '75, University of Minnesota. Major: Physics. Thesis: Current as a Function of Depth in Water. Major Adviser: Prof. Thomas Jordan.

Nickolas A. Kohlmann  
B.S. summa cum laude '78, University of Wisconsin, Oshkosh. Major: Geology. Thesis: Polymetamorphism of the Little Willow Formation, Wasatch Mountains, Utah. Major Adviser: Prof. James Grant.

Anlee Hou Krupp

B.S. '75, College of Chinese Culture. Major: Biology. Minor: Chemistry. Thesis: The Study of *Chironomus tentans* Salivary Glands Maintained *in vitro*. Major Adviser: Prof. Conrad Firling.

Thomas Edward Robertson

B.S.Nat.Res. '74, Ohio State University. Major: Biology. Thesis: Biomass Response of Periphyton and Plankton to Coal Leachates and Coal Distillates. Major Adviser: Prof. David Gerhart.

Todd Alm Swanson

B.C. '78, University of Minnesota. Major: Chemistry. Thesis: Phenol Analysis Using 2-Fluorenyl Sulfonates. Major Adviser: Prof. Robert Carlson.

### Master of Science in Chemical Engineering

Bhupendra Kanchanlal Patel,  
Baroda, India

B.E. '73, University of Baroda. Major: Chemical Engineering. Thesis: Temperature Dependency of Radiation Chemical Yields. Major Adviser: Prof. Herbert Isbin.

Patricia JoAnne Watson,  
Preemption, Ill.

A.B. '77, Augustana College. Major: Chemical Engineering. Thesis: Growth and Feeding Kinetics of *T. Pyriformis* Preying on Nongrowing *E. Coli*. Major Adviser: Prof. Arnold Frederickson.

### Master of Science in Civil Engineering

Kenneth William Ayers, Sioux City,  
Iowa

B.S.C.E. with highest honors '74, University of Texas, Austin; M.P.A. '78, University of Oklahoma. Major: Civil Engineering. Thesis: Removal of Organic Material From Mississippi River Water by Coagulation With Alum and Ferric Sulfate. Major Adviser: Prof. Michael Semmens.

Dimitris Karabalis, Lefkas, Greece

Architecture Diploma '77, National Technical University of Athens. Major: Civil Engineering. Major Adviser: Prof. Ladislav Cerny.

Emilie Jane Burris, Tigard, Ore.

B.S.C.E. '77, Montana State University. Major: Civil Engineering. Thesis: The Analytical Solutions of Two Plane-Strain Consolidation Problems. Major Adviser: Prof. Otto Strack.

### Master of Science in Electrical Engineering

Marc Illsley Clarke, Minneapolis

B.E.E. with high distinction '78, University of Minnesota. Major: Electrical Engineering. Thesis: Afterglow Studies in Helium Cadmium Mixtures. Major Adviser: Prof. Hendrik Oskam.

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B.S. '78, North Dakota State University. Major: Electrical Engineering. Major Adviser: Prof. Frederick Waltz.

Joseph Max Cortner, Cottage Grove

B.S. '72, Iowa State University. Major: Electrical Engineering. Major Adviser: Prof. Larry Kinney.

George Anthony Lippert, Richfield

B.E.E. '76, University of Minnesota. Major: Electrical Engineering. Major Adviser: Prof. Mostafa Kaveh.

Stephen Patrick Cummings, Austin,  
Tex.

B.S. '73, Iowa State University. Major: Electrical Engineering. Major Adviser: Prof. Richard Halverson.

Nai-Kuang Frank Pu

B.S. '73, Fu Jen Catholic University; M.S. '78, University of Minnesota. Major: Electrical Engineering. Thesis: Properties of Plasma Anodized Aluminum Film on GaAs. Major Adviser: Prof. Gary Robinson.

Joseph S. Haddad, Beirut, Lebanon

B.E.E. '78, University of Dayton. Major: Electrical Engineering. Major Adviser: Prof. Mostafa Kaveh.

Duane A. Schroeder, White Bear  
Lake

B.S. with distinction '74, Iowa State University. Major: Electrical Engineering. Major Adviser: Prof. Richard Halverson.

August

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## Master of Science in Mechanical Engineering

Michael John Andrie, Bluffton  
B.Ag.Eng. with distinction '78, University of Minnesota. Major: Mechanical Engineering. Major Adviser: Prof. Thomas Murphy.

Ulvi Gurdal, Canakkale, Turkey  
B.S. '76, Technical University of Istanbul. Major: Mechanical Engineering. Thesis: Heat Transfer on an Upstream Facing Surface Pierced by an Aperture or Duct Inlet. Major Adviser: Prof. Ephraim Sparrow.

Michael Keefe, Golden Valley  
B.S. with highest honors '78, University of Notre Dame. Major: Mechanical Engineering. Thesis: Facial Form Analysis Through Computer Aided Design. Major Adviser: Prof. Donald Riley.

Kil-choo Moon, Seoul, Korea  
B.A.Sc. '78, University of Ottawa. Major: Mechanical Engineering. Minor: Industrial Engineering. Thesis: Pressure Drop Characteristics of Diesel Exhaust Particles on Filter Substrates. Major Adviser: Prof. David Kittelson.

Sharadkumar M. Shah, Ahmedabad,  
India  
Major: Mechanical Engineering. Major Adviser: Prof. Ephraim Sparrow.

## Master of Science in Medicine

MAYO GRADUATE SCHOOL OF MEDICINE

Laurence J. Miller, Philadelphia,  
Pa.

B.S. with high distinction '71, Pennsylvania State University; M.D. '73, Jefferson Medical College of Philadelphia. Major: Medicine. Thesis: Jejuno-Ileal Control of Gastric, Pancreatic and Biliary Function During Digestion of Meals in Man. Major Adviser: Prof. Vay Co.

## Master of Science in Otolaryngology

Philip Neil Rapport, Minneapolis

A.B. with distinction '72, University of Michigan; M.D. '75, Ohio State University. Major: Otolaryngology. Minor: Anatomy. Thesis: Surface Tension Measurements Middle Ear Effusion Analysis. Major Adviser: Prof. Sung Juhn.

## Master of Science in Otolaryngology

MAYO GRADUATE SCHOOL OF MEDICINE

Gregory Dean Mathew, Rochester

A.B. '70, Indiana University, Bloomington; M.D. '74, Indiana University, Indianapolis. Major: Otolaryngology. Thesis: The Role of Immunoglobulin A Antibodies to Epstein-Barr Virus Antigens in Patients With Nasopharyngeal Carcinoma. Major Adviser: Prof. Harry Neel.

## Master of Social Work

James Dennis Gilar, Minneapolis

B.A. '70, University of Minnesota, Duluth. Major: Social Work. Major Adviser: Prof. Helen Yesner.

Suzanne Louise Irvine

A.B. cum laude '74, Muhlenberg College. Major: Social Work. Major Adviser: Prof. Helen Yesner.

Sarah Mary Lawton-Speert, Sultons Bay, Mich.

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B.S. '77, University of Minnesota. Major: Social Work. Major Adviser: Prof. Robert McClelland.

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B.A. summa cum laude '70, College of St. Thomas. Major: Social Work. Major Adviser: Prof. Annalee Stewart.

Mary Margaret Tekautz, St. Paul

B.A. cum laude '67, University of Minnesota. Major: Social Work. Major Adviser: Prof. Richard Sterne.

## Master of Social Work

UNIVERSITY OF MINNESOTA, DULUTH

David Lorenz Danz

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## Specialist Certificate in Education

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B.A. '70, Wellesley College; M.A. '77, University of Minnesota. Field: School Psychological Services. Major Adviser: Prof. V. L. Erickson.

Diane Kaplan Browne, Hopkins

B.S. '64, M.A. '73, University of Minnesota. Field: Special Education. Major Adviser: Prof. Maynard Reynolds.

Thomas Phillip Jacobson, Longville

B.S. '69, Bemidji State College; M.S. '73, St. Cloud State College. Field: General Educational Administration. Major Adviser: Prof. Gary Alkire.

Juanita Harris Lussenhop, New Hope

B.A. '72, St. Cloud State College; M.A. '74, University of Minnesota. Field: Special Education. Major Adviser: Prof. Dewey Force, Jr.

Kenneth David Pedersen, Stillwater

B.S. '57, Winona State Teachers College. Field: Secondary School Administration. Major Adviser: Prof. Neal Nickerson.

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## Specialist Certificate in Education

UNIVERSITY OF MINNESOTA, DULUTH

Daniel Francis Molesky

B.S. '64, University of Minnesota, Duluth. Field: Elementary School Administration. Major Adviser: Prof. William Gemeinhardt.

Dale Ray Rapp

B.S. '61, M.A. '69, University of Minnesota, Duluth. Field: Secondary School Administration. Major Adviser: Prof. Alvin Ollenburger.

August

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## 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

Roy Dewayne Henderson,  
Menomonie, Wis.

A.B. '75, Belmont Abbey College. Major: Vocational Education. Thesis: A Study to Identify In-Service Educational Needs of Selected Minnesota Retail Business Trainers. Major Adviser: Prof. Mary Klaurens.

#### Doctor of Philosophy

Adebisi Akanni Aborisade, Lagos,  
Nigeria

A.B. '72, Indiana University; M.S. '74, Oklahoma State University. Major: Mass Communication. Thesis: The International News Imbalance: A Nigerian Case Study. Major Adviser: Prof. Robert Lindsay.

Roger Kay Allen, Denver, Colo.

B.S. summa cum laude '75, Brigham Young University. Major: Educational Psychology. Thesis: The Contribution of Counselor Development to Various Measures of Counselor Performance. Major Adviser: Prof. Alan Anderson.

Karen Altergott, Sheboygan, Wis.

B.A. cum laude '73, University of Wisconsin, Milwaukee; M.A. '78, University of Minnesota. Major: Sociology. Thesis: Variety in Daily Life: A Time-Budget Study of Role-Relationships Across the Life Course. Major Adviser: Prof. Donald McTavish.

Marikis Nolasco Alvarez

B.S. '75, M.S. '77, Tuskegee Institute. Major: Horticulture. Thesis: Effect of Interspecific *Phaseolus* Hybrids on Biological Nitrogen Fixation. Major Adviser: Prof. Peter Ascher.

Luz Melinda Amaya, Ibaqu e,  
Colombia

Ag.Eng. '69, Universidad del Tolima; M.S. '74, Universidad Nacional de Colombia. Major: Entomology. Minor: Plant Pathology. Thesis: Alfalfa Ecosystem Studies. Major Adviser: Prof. Edward Radcliffe.

Jennifer J. Anderson, Richfield

B.A. summa cum laude '73, University of Minnesota; M.S. '75, University of Wisconsin. Major: Educational Psychology. Thesis: Imagery and Behavior Change. Major Adviser: Prof. Alan Anderson.

David Apolloni, Minneapolis

B.A. summa cum laude '75, University of Minnesota. Major: Philosophy. Thesis: Plato and the Self-Predication Assumption. Major Adviser: Prof. Sandra Peterson.

William Dale Berry, Cleveland, Ohio

A.B. '74, Washington University. Major: Political Science. Thesis: Economic Regulation by State Commissions: The Case of the Electric Utility Industry. Major Adviser: Prof. Virginia Gray.

David Roy Bowman, Downers  
Grove, Ill.

B.A. with highest honors '76, Bethel College. Major: Physics. Thesis: Spin Glass Transition in Systems With Short Range Exchange and Random Long Range Couplings. Major Adviser: Prof. J. W. Halley.

Mary Margaret Brabeck, Warren, R.I.

B.A. '67, University of Minnesota; M.S. '70, St. Cloud State College. Major: Educational Psychology. Thesis: The Relationship Between Critical Thinking Skills and Development of Reflective Judgment Among Adolescent and Adult Women. Major Adviser: Prof. Clyde Parker.

Thomas Leo Brauch, Maurice, Iowa  
B.A. '68, St. John's University; M.A. '71, University of Minnesota. Major: Classical Area Studies. Minor: History. Thesis: The Political Philosophy of the Emperor Julian as Found in His Writings. Administration and Propaganda. Major Adviser: Prof. J. P. Hershbell.

Clayton Charles Bromley, Canton,  
Ohio

B.S. with honors '70, Case Western Reserve University. Major: Mathematics. Thesis: Topics in Stochastic Differential Equations and in the Theory of Two-Parameter Gaussian Processes. Major Adviser: Prof. Gopinath Kallianpur.

J. Michael Brown, Tacoma, Wash.

B.S. '75, M.A. '78, University of Washington. Major: Geophysics. Thesis: Thermodynamic Properties for Iron at Very High Pressures: Implications for the Earth's Core. Major Adviser: Prof. George Shaw.

John Vincent Carlis, Minneapolis

B.S. '69, M.S. '71, Pennsylvania State University. Major: Business Administration. Thesis: An Investigation Into the Modeling and Design of Large, Logically Complex, Multi-User Databases. Major Adviser: Prof. Norman Chervany.

Andrew James Caruso, Baton  
Rouge, La.

B.S. '76, Louisiana State University. Major: Chemistry. Thesis: Studies Toward the Total Synthesis of Aplysistatin and the Total Synthesis of Ancistrofuran. Major Adviser: Prof. Thomas Hoye.

Jose Mario Castro, Santa Ana, El  
Salvador

Ing. Quimico Industrial '74, La Universidad Centroamericana Jose Simeon Canas; M.S. '76, Ohio University. Major: Chemical Engineering. Thesis: Mold Filling and Curing Studies for the Polyurethane Rim Process. Major Adviser: Prof. Christopher Macosko.

Jerome Henry Cherney, Milladore,  
Wis.

B.S. '71, M.S. '77, University of Wisconsin. Major: Agronomy. Thesis: Analysis of Forage Yield and Quality Potential of Small Grain Crops and the Interrelationships Among Biological, Chemical, Morphological, and Anatomical Determinants of Quality. Major Adviser: Prof. Gordon Marten.

Stanley E. Chernicoff, Brooklyn,  
N.Y.

B.A. '70, Brooklyn College, City University of New York. Major: Geology. Thesis: The Superior-Lobe and Grantsburg-Sublobe Tills: Their Compositional Variability in East-Central Minnesota. Major Adviser: Prof. Herbert Wright, Jr.

David LaVerne Ching, Plymouth

B.C.E. with distinction '73, M.C.E. '76, University of Minnesota. Major: Civil Engineering. Minor: Computer and Information Sciences. Thesis: A Dynamic Model of the Completely Mixed Activated Sludge and Final Clarification Processes. Major Adviser: Prof. Walter Maier.

Merav Chlamtac, Bat-Yam, Israel

B.S. '74, M.S. with distinction '77, Tel Aviv University. Major: Computer and Information Sciences. Thesis: An Improved Multi-Dimensional Spline Approximation by Localized Basis Augmentation. Major Adviser: Prof. Judah Rosen.

Leif Christensen, Brabrand, Denmark

Cand. Scient. '76, Aarhus Universitet. Major: Chemistry. Thesis: Organic Electrochemistry Applied to Synthesis. Major Adviser: Prof. Larry Miller.

Jane-Lan Christy Chuang, Hualien,  
Taiwan

B.S. '75, National Taiwan University. Major: Statistics. Minor: Mathematics. Thesis: Analysis of Categorical Data With Ordered Categories. Major Adviser: Prof. Kinley Larntz.

Ronald Keith Churchill, Yuba City,  
Calif.

B.A. '75, Chico State College; M.S. '78, University of Minnesota. Major: Mineralogy and Petrology. Thesis: Meteoric Water Leaching and Ore Genesis at the Tayoltita Silver-Gold Mine, Durango, Mexico. Major Adviser: Prof. Frederick Sawkins.

Edward Leo Cochran III,  
Minneapolis

B.A. with general and departmental honors '76, Johns Hopkins University. Major: Child Psychology. Minor: Psychology. Thesis: Spatial Effects on the Execution of Ballistic Movements. Major Adviser: Prof. Anne Pick.

Philip Vito Coggnetta, St. Paul

B.A. '67, College of St. Thomas. Major: Education. Thesis: Cross-Age Teaching in Secondary Schools: A Program for Psychological Development. Major Advisers: Profs. William Gardner and Norman Sprinthall.

Bethaviva Cohen, Chicago, Ill.

B.A. with distinction '71, University of Illinois, Chicago Circle; M.S. '74, University of Minnesota. Major: Educational Administration. Thesis: A Structural Model of Factors Affecting Changes in Net Tuition Revenues at Private Colleges. Major Adviser: Prof. William Ammentorp.

Donald Wayne Compton,  
Blacksburg, Va.

B.A. '74, Hamline University; M.S. '76, Virginia Polytechnic Institute and State University. Major: Educational Administration. Thesis: Toward an Integration of Youth Development and Smoking Behavior Theory: An Empirical Study of Adolescent Cigarette Smoking. Major Adviser: Prof. Clifford Hooker.

William James Craig, Minneapolis

B.A. '65, M.A. '72, University of Minnesota. Major: Geography. Thesis: Monitoring Minnesota's Land Using Public Records. Major Adviser: Prof. Fred Lukermann.

Joanne Ardolf Decker, Mankato

B.A. '67, College of St. Benedict; M.A. '71, University of Minnesota. Major: Education. Thesis: Recreation and Community Education Directors' Perceptions of Recreation Services for the Mentally Retarded in Minnesota Communities. Major Advisers: Profs. John Schultz and Caroline Weiss.

Michael Xavier DelliCarpini,  
Philadelphia, Pa.

B.A. magna cum laude '75, A.M. '75, University of Pennsylvania. Major: Political Science. Thesis: Political Participation in Changing Societies: The U.S. Case. Major Advisers: Profs. Roger Benjamin and John Sullivan.

Mark L. Dittenhafer, Dover, Pa.

B.A. '76, Shippensburg State College. Major: Chemistry. Thesis: Elucidation of Electrochemically Assisted Cerium Catalyzed Base Hydrolysis Reactions of Vitamin B<sub>12a</sub>. Major Adviser: Prof. Harold Swofford.

Mark Ignatius Donnelly, St. Paul

B.A. '70, B.S. '73, University of Minnesota. Major: Biochemistry. Thesis: Production of Methanol From the Bacterial Metabolism of Aromatic Acids and Succinic Semialdehyde Dehydrogenases of *Escherichia Coli*. Major Adviser: Prof. Stanley Dagley.

Kenneth Allen Dragseth, Edina

B.A. magna cum laude '67, Gustavus Adolphus College. Major: Education. Minor: Educational Administration. Thesis: A Delphic Perspective on Future Curricular and Instructional Alternatives in Minnesota Secondary Schools. Major Adviser: Prof. Richard Kimpston.

Robert Edward Drechsel, Fergus  
Falls

B.A. '71, M.A. '76, University of Minnesota. Major: Mass Communication. Thesis: Newsmaking in the Trial Courts: Newspaper Reporters and Sources in Courts of Original Jurisdiction. Major Adviser: Prof. Donald Gillmor.

Maria Angelina Duarte, Rumford,  
R.I.

B.A. '71, Vanderbilt University; M.A. '74, University of Texas, Austin. Major: Spanish. Minor: Hispanic Linguistics. Thesis: Socio-Political Undercurrents in Four Works by Jose Rodrigues Migueis. Major Adviser: Prof. Ronald Sousa.

Thomas Robert Edman, St. Paul

B.A. cum laude '70, University of Notre Dame. Major: Psychology. Thesis: Learning of Intra-Phonemic Discrimination for Several Synthetic Speech Continua. Major Adviser: Prof. James Jenkins.

Gad Eisenstein, Haifa, Israel

B.S. '75, University of Santa Clara; M.S. '78, University of Minnesota. Major: Electrical Engineering. Thesis: Infrared Detection With Point Contact-Metal Semiconductor Diodes. Major Adviser: Prof. Keith Champlin.

John Paul Ellis, St. Paul

B.A. '70, Macalester College; M.A. '75, University of Minnesota. Major: Educational Psychology. Thesis: Representational Systems: An Investigation of Sensory Predicate Use in a Self-Disclosure Interview. Major Adviser: Prof. Alan Anderson.

Robert James Ferry, Wheatridge,  
Colo.

B.A. cum laude '69, University of Colorado; M.A. '74, University of Minnesota. Major: History. Thesis: Essays in the Society and Economy of Colonial Caracas, 1580-1750. Major Adviser: Prof. Stuart Schwartz.

Gary Alan Finn, Bridgeton, Mo.

B.S. with honors '76, University of Missouri, Columbia; M.S. '78, University of Minnesota. Major: Agronomy. Thesis: The Role of Current Photosynthate and Carbohydrate Reserves in the Control of Nitrogen Fixation in Soybeans (*Glycine Max* (L.) Merr.). Major Adviser: Prof. William Bruun.

Ellen Jean Fitzgerald, Minneapolis

B.S. '62, M.A. '67, University of Minnesota. Major: Educational Administration. Minor: Library Science. Thesis: An Analysis of Factors Influencing the Results of the Faculty Collective Bargaining Election at the University of Minnesota, April 1978. Major Adviser: Prof. Van Mueller.

Nancy Elizabeth Martin Foss,  
Seattle, Wash.

A.B. '66, Oberlin College; M.A. '69, University of Minnesota. Major: French. Thesis: Female Characters in the Comedies of Charles Riviere Dufresny. Major Advisers: Profs. Armand Renaud and Joseph Waldauer.

Evelyn Miller Franklin, St. Paul  
B.S. with distinction '49. M.A. '51. University of Minnesota. Major: Home Economics. Thesis: Use of Housing Space by Families With Preschool Children—Their Needs as Future Design Criteria. Major Adviser: Prof. Gertrude Esteros.

Doran C. French  
A.B. with distinction '73. University of California, Berkeley. Major: Child Psychology. Thesis: The Effects of Locus of Causality Attributions and Situational Generalization on Helplessness in Human Subjects. Major Adviser: Prof. Willard Hartup.

Georgia Mae Frieswick, Falmouth,  
Mass.  
A.B. magna cum laude '75. Wheaton College. Major: Pharmacology. Thesis: *Beta* Adrenergic Neuroeffector Mechanisms in Hearts of Normotensive and Spontaneously Hypertensive Rats During Development. Major Adviser: Prof. Frederick Shideman.

Clark James Gantzer, Minneapolis  
B.S. with high distinction '74. M.S. '76. University of Minnesota. Major: Soil Science. Thesis: Physical and Morphological Investigations of Surface Seal Formation on Selected Soils. Major Adviser: Prof. George Blake.

Pascal Jose Gbikpi, Evian, France  
Diplome '76. Institut National Agronomique Paris-Grignon. Major: Agronomy. Thesis: Characterizing the Grain-Filling and Maturation Period of Soybean (*Glycine Max* [L.] Merrill) Growth. Major Adviser: Prof. R. K. Crookston.

Susan Goodwin Gerberich, Golden  
Valley  
B.S.N. with high distinction '75. M.S. '78. University of Minnesota. Major: Environmental Health. Thesis: Analyses of High School Football Injuries and Concomitant Health Care Provision. Major Adviser: Prof. Conrad Straub.

Nahum Ben-Zion Goldstein,  
Caracas, Venezuela  
Ing. Mecanica '74. Universidad Simon Bolivar. Major: Control Sciences. Thesis: Decentralized Control Strategies for Linear Systems With Application to Freeway Traffic Regulation. Major Adviser: Prof. K. S. Kumar.

Karen Renee Gouze, Bronx, N.Y.  
A.B. with highest honors '75. University of Michigan. Major: Child Psychology. Thesis: The Relationship Between Individual Differences in Attention, Problem-Solving, and Behavior in Preschool Children. Major Adviser: Prof. Willard Collins.

Patricia Louise Grambsch,  
Minneapolis  
B.A. summa cum laude '71. Carleton College. Major: Statistics. Minor: Mathematics. Thesis: Conditional Likelihood Inference. Major Adviser: Prof. David Hinkley.

James Patrick Greenan, Buffalo, N.Y.  
B.S.Ed. '73. State University College, Buffalo; M.Ed. '74. Bowling Green State University. Major: Vocational Education. Thesis: The Reliability and Validity of Student Self-Rating and Teacher Rating Generalizable Skills Instruments for Post-Secondary Vocational Education Programs. Major Adviser: Prof. Brandon Smith.

John Stephan Gulliver, Gardena,  
Calif.  
B.S. '74. University of California, Santa Barbara; M.S.C.E. '77. University of Minnesota. Major: Civil Engineering. Thesis: Reaeration and Productivity Analysis From Dissolved Oxygen Routing in Open Channels. Major Adviser: Prof. Heinz Stefan.

Scott Richard Hagedorn, Fond du  
Lac, Wis.  
B.S. '75. University of Wisconsin. Major: Biochemistry. Minor: Chemistry. Thesis: The Metabolism of Gentisate. Homogentisate and Related Analogues by Bacteria. Major Adviser: Prof. Peter Chapman.

Suzanne Johnson Hagen, Spring  
Valley  
B.A. summa cum laude '70. Macalester College; M.A. '72. University of Minnesota. Major: Speech-Communication. Thesis: Novice Interviewers' Message Structure and Interview Method. Major Adviser: Prof. David Rarick.

Lea Hagoel, Haifa, Israel  
B.S.S. '73. M.A. '75. University of Haifa. Major: Sociology. Thesis: Urban Friendships: Qualitative and Quantitative Aspect of Primary-Relations in an Urban Community Setting. Major Adviser: Prof. David Cooperman.

Ramy Hagoel, Haifa, Israel  
B.S.W. '74. University of Haifa; M.A. '78. University of Minnesota. Major: Educational Administration. Thesis: Sex Education in Public and Parochial Schools: Educators' Role-Conflict. Major Adviser: Prof. William Ammentorp.

Marjorie Collings Hall, Rockville,  
Ind.  
B.S. '68. Indiana University. Major: Zoology. Minor: Ecology. Thesis: Genetic Differentiation Within the Tropical Land Crab Family Gecarcinidae. Major Adviser: Prof. Franklin Barnwell.

Robert Alphonse Handler,  
Maplewood, N.J.

B.Eng. with honor '73, Stevens Institute of Technology; M.S.E. '74, University of Michigan. Major: Mechanics. Thesis: Acoustic Pulse Propagation in a Convergent-Divergent Duct Carrying a Subsonic Mean Flow. Major Adviser: Prof. Theodore Wilson.

Emmanuel Abdiyah Abdul Haqq,  
Burnsville

B.Phys. with high distinction '74, University of Minnesota. Major: Physics. Minor: Internal. Thesis: The Dynamical Structure of the Pion. Major Adviser: Prof. Hiroshi Suura.

David William Hird, St. Paul

A.B. with distinction '64, Stanford University; D.V.M. '68, M.P.V.M. '73, University of California, Davis. Major: Veterinary Microbiology. Thesis: Epidemiologic Studies of the Relation of Well Water Source to Dairy Cattle Health and Productivity in Fillmore County, Minnesota. Major Adviser: Prof. R. A. Robinson.

Sigurd Manfred Oswald Hoppe,  
Minneapolis

B.A. '55, Ohio Wesleyan University. Major: Educational Psychology. Thesis: Child Sociability as Function of Attributed Peer Acceptance. Major Advisers: Profs. Marian Hall and Shirley Moore.

George John Hoynacki, Menomonee  
Falls, Wis.

B.A. '52, Marquette University; M.Ed. '61, Harvard University. Major: South Asian Languages. Thesis: Suryakant Tripathi 'Nirala' and the Chhayavad School of Indian Literature (1920-1935): An Investigation and Analysis of Nirala's Poetry and His Impact Upon the Literary Movements in Indian Literature. Major Adviser: Prof. Ram Munda.

Yiching Dolly Hwang, Tsoying,  
Taiwan

B.A. '68, National Taiwan University. Major: Education. Thesis: The Interface Relationship Between Engineers' College Education and Their Work in Industry, A Study of Five Areas of Discontinuity. Major Adviser: Prof. Arthur Harkins.

Keith Joseph Johansen, Hastings

B.S. with distinction '67, University of Minnesota; M.S. '71, Queens College; M.A. '76, New School for Social Research. Major: Education. Thesis: Advisement Information in Rule Learning Using Learner-Controlled, Computer-Assisted Instruction. Major Adviser: Prof. Robert Tenmyson.

Mark Louis Johnson, Rochester

B.S. '76, University of Minnesota. Major: Biochemistry. Thesis: Regulation of the Intracellular Concentration and Specific Activity of Pyruvate Kinase. Major Adviser: Prof. Carlo Veneziale.

Jeanne Hurley Jones, St. Paul

Major: Educational Psychology. Thesis: Shame-proneness in Mothers and Their Daughters and the Dynamics of Shame in Mothers' and Daughters' Verbal Interactions. Major Adviser: Prof. Alan Anderson.

Gail Mindy Kempler, Atlanta, Ga.

B.S. '75, University of Florida; M.S. '77, North Carolina State University, Raleigh. Major: Food Science. Thesis: The Role of Plasmid Deoxyribonucleic Acid in *Streptococcus lactis* subsp. *diacetylactis*. Major Adviser: Prof. Larry McKay.

Zehra Avsar Keye, Istanbul, Turkey

B.A. cum laude '70, St. Olaf College. Major: Speech-Communication. Thesis: An Exploratory Study of Students' Written Responses to Foreign Teaching Assistant Presentations. Major Advisers: Profs. William Howell and Richard Paige.

John Barry Kiely

B.S. '74, University of Michigan. Major: Physics. Thesis: Frequency Dependent Electrical Resistivity and Magnetic Susceptibility Measurements at the Nuclear Magnetic Ordering Transition in PrCu<sub>6</sub>. Major Adviser: Prof. Walter Weyhmann.

Gregory Charles Kozlowski,  
Elmhurst, Ill.

B.A. '70, Loyola University; M.A. '75, University of Iowa; M.A. '78, University of Minnesota. Major: History. Thesis: Muslim Endowments and Society in British India. Major Adviser: Prof. David Lelyveld.

Joseph Anthony Kunkel III, St.  
Louis, Mo.

B.A. magna cum laude '72, University of Missouri; M.A. '75, University of Minnesota. Major: Political Science. Thesis: The Ideological Party in American Politics: The Case of the Milwaukee Social Democrats. Major Adviser: Prof. Mulford Sibley.

Mark Joseph Kurth, Pringhar, Iowa

B.A. '75, University of Northern Iowa. Major: Chemistry. Thesis: Total Synthesis of dL-3 Beta-Bromo-8-Epicaparrapi Oxide and dL-Aplysistatin and Synthetic Progress Towards Megaphone. Major Adviser: Prof. Thomas Hoye.

Leah Sue Larkey, Newark, N.J.

B.A. '74, Hampshire College. Major: Psychology. Thesis: The Role of Prosodic Information in Speech Perception. Major Advisers: Profs. James Jenkins and Herbert Pick.

David Michael Larson, New  
Brighton

B.S. magna cum laude '72. Major: Zoology. Thesis: Junctional Transfer of Small Molecules in Cultured Vascular Endothelium. Major Adviser: Prof. Judson Sheridan.

- Noel Ruth Larson, St. Paul  
B.A. '66. M.S.W. '67. University of Minnesota. Major: Social Work. Thesis: An Analysis of a State-Sponsored Program Designed to Teach Intervention Skills in the Treatment of Family Sexual Abuse. Major Adviser: Prof. Hamilton McCubbin.
- Sai Chuen Lau, Hong Kong  
B.S.M.E. with high honors '75. Texas Tech University. M.S.M.E. '75. University of Minnesota. Major: Mechanical Engineering. Thesis: Turbulent Heat Transfer and Flow Field Phenomena Downstream of a Consecutive Abrupt Expansion and Contraction. Major Advisers: Profs. James Ramsey and Ephraim Sparrow.
- Jane Marie Lawson, St. Louis, Mo.  
A.B. '62. Webster College. Major: Educational Psychology. Thesis: The Relationship Between Graduate Education and the Development of Reflective Judgment: A Function of Age or Educational Experience. Major Adviser: Prof. Theda Hagenah.
- Jeannette M. Lopez Lewellyn, St. Paul  
B.A. summa cum laude '74. Loyola University. Major: Anatomy. Thesis: The Polarized Rat Paneth Cell: Immunocytochemistry, Ultrastructure, and Morphometry of the Mature Cell and Its Cyto-differentiation. Major Adviser: Prof. Stanley Erlandsen.
- Robert S. Lichtenstein, Cleveland Heights, Ohio  
A.B. with distinction '73. University of California, Berkeley. M.A. '75. University of Minnesota. Major: Psychology. Thesis: Identifying Children With Special Educational Needs Via Preschool Screening: Binet Revisited. Major Adviser: Prof. Byron Egeland.
- Debra Vanloon Lindell, Minneapolis  
B.A. with highest honors '74. Bethel College. Major: Anatomy. Thesis: Glucose Modulation of Insulin, Glucagon, and Somatostatin Release From the Isolated, Perfused Rat Pancreas. Major Adviser: Prof. Robert Sorenson.
- George Dimitri Manolis, Thessaloniki, Greece  
B.C.E. with high distinction '76. M.S.C.E. '77. University of Minnesota. Major: Civil Engineering. Thesis: Dynamic Response of Underground Structures. Major Adviser: Prof. Dimitrios Beskos.
- Spero Martin Manson, Lake Oswego, Ore.  
B.A. cum laude '72. University of Washington. M.A. '75. University of Minnesota. Major: Anthropology. Thesis: Cross-Modal and Cross-Cultural Experiments in Observer Perceptions of the Social Organization of Behavior in Face-to-Face Interaction. Major Adviser: Prof. Harvey Sarles.
- Charles Arthur Marttila, Floodwood  
B.S. summa cum laude '74. M.S. '76. University of Minnesota, Duluth. Major: Physics. Thesis: Disparate Anode-Cathode Coronal Light Emission. Major Adviser: Prof. George Freier.
- Marilyn Jean Mason, Minneapolis  
B.S. with distinction '72. University of Minnesota. Major: Home Economics. Minor: Speech-Communication. Thesis: Relationship Enrichment: Evaluating the Effects of a Couples Wilderness Program. Major Advisers: Profs. Richard Hey and Hamilton McCubbin.
- Bruce Elwood Mattson  
B.C.E. '71. University of Minnesota. Major: Business Administration. Thesis: Relative Contribution of Individual, Product, and Situational Factors on Shopping Behaviors. Major Adviser: Prof. Richard Cardozo.
- Gary Harold Maybarduk, Orlando, Fla.  
B.S. '67. Massachusetts Institute of Technology; A.M. '68. Fletcher School of Law and Diplomacy. Major: Economics. Thesis: Inflation, Credit Controls, and Investment Composition, Argentina 1955-1972. Major Adviser: Prof. Oswald Brownlee.
- Orchard Mdzonga, Mtoko, Zimbabwe  
B.A. '71. St. Olaf College; M.A. '78. University of Minnesota. Major: Educational Administration. Thesis: The Role of African Professionals in American and African Societies: Educational Implications. Major Adviser: Prof. Vernon Hendrix.
- Paul David Meartz, Mayville, N.D.  
B.A. '72. University of Wisconsin; M.A. '74. University of Minnesota. Major: Geography. Thesis: The Third World Information-Gathering Systems of American-Based Multi-National Corporations. Major Adviser: Prof. Joseph Schwartzberg.
- Michael Lewis Michlin, Minneapolis  
B.S. '69. University of Minnesota. Major: Education. Thesis: The Effects of Social Perceptual and Causal Attributional Variables on Teachers' Perceptions and Ratings of Students' Written Composition. Major Adviser: Prof. G. L. Piché.
- Rhonda Jean Voigt Montgomery, Austin  
B.S. with honor '72. M.A. '75. North Dakota State University. Major: Sociology. Thesis: Relationships of Residents of Long Term Health Care Institutions to Their Families and Staff. Major Adviser: Prof. Robert Leik.

Michael Charles Morrison,  
Wahpeton, N.D.

B.A. '68, M.A. '70, University of Minnesota. Major: Educational Administration. Minor: Sociology. Thesis: Faculty Salaries at a Two-Year Post-secondary Institution: A Multiple Regression and Path Analysis. Major Adviser: Prof. Vernon Hendrix.

Bassam Ahmad Mughrabi,  
Damascus, Syria

B.S. '69, Damascus University; M.S. '72, Eastern Michigan University. Major: Physics. Minor: Internal. Thesis: Some Problems in Nuclear Reaction Theory. Major Adviser: Prof. Paul Ellis.

William Paul Muldoon, Boston,  
Mass.

B.S. '72, Massachusetts College of Pharmacy. Major: Medicinal Chemistry. Minor: Biochemistry. Thesis: Structural Analogs of Proline and Their Effects on Proline Oxidase. Major Adviser: Prof. Herbert Nagasawa.

James Gregory Mulligan, Newark,  
Del.

B.S. '70, United States Military Academy; M.S.Ed. '75, University of Southern California, Los Angeles. Major: Economics. Thesis: Queuing Theory and the Production Function: An Application to the Textile Industry. Major Adviser: Prof. Herbert Mohring.

Eileen Marie Murray, Greenwood  
Lake, N.Y.

B.S.E.E. with distinction '75, Northwestern University; M.S.E.E. '78, University of Minnesota. Major: Electrical Engineering. Thesis: An Investigation of the Contoured-Oxide Monolithic Series-Array Solar Battery. Major Adviser: Prof. Raymond Warner, Jr.

Karen Olson Murray, St. Paul

B.A. cum laude '69, Macalester College; M.A. '76, University of Minnesota. Major: English. Thesis: Speakers in Lyric Poetry. Major Advisers: Profs. C. M. Hancher and Martin Steinmann.

Gregory Dale Nastrom, Bloomington

B.Phys. with distinction '68, M.S. '75, University of Minnesota. Major: Fluid Mechanics. Thesis: Winds and Turbulence Near the Top of the Planetary Boundary Layer From Balloon Measurements. Major Adviser: Prof. Homer Mantis.

Charles Edward Neal, Chicago, Ill.

B.A. '69, Luther College; M.A. '71, Iowa State University. Major: Political Science. Thesis: Compliance and the State Legislature: An Empirical Analysis of Abortion and Aid to Non-Public Schools in Illinois and Minnesota. Major Adviser: Prof. Samuel Krislov.

Gerald Nickelsburg, San Francisco,  
Calif.

B.A. '71, George Washington University; M.A. '74, University of Colorado. Major: Economics. Thesis: A Theoretical and Empirical Analysis of Flexible Exchange Rate Regimes. Major Adviser: Prof. Christopher Sims.

Julio Jorge Nogues

Licenciado '69, Pontificia Universidad Catolica Argentina; M.A. '74, University of Minnesota. Major: Economics. Thesis: Trade, Distortions and Employment in the Argentine Manufacturing Sector. Major Adviser: Prof. Anne Krueger.

Marjorie Thompson Norton, Lisbon,  
N.Y.

B.S. with honors '71, Cornell University. Major: Home Economics. Minor: Agricultural Economics. Thesis: The Assessment of the Flammability Hazard and Its Relationship to Price for a Set of Women's Nightgowns. Major Adviser: Prof. Robert Johnson.

Yvonne R. Nyman, Mankato

B.S. '70, M.S. '72, Mankato State College. Major: Education. Thesis: The Career Development and Job Satisfaction of Administrative Assistants With and Without a Four-Year Degree in the Administrative Assistant Field. Major Adviser: Prof. Judith Lambrecht.

Jacqueline Ann O'Hara, St. Paul

B.A. '55, College of St. Catherine; M.A. '64, University of Minnesota. Major: French. Thesis: *Les Oeuvres Sainctes* of Jean Auvray: A Critical Edition and An Alchemical Study. Major Adviser: Prof. Armand Renaud.

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B.S.B.A. '71, University of Denver; M.S. '77, University of Minnesota. Major: Forestry. Thesis: Strategic Planning and Land-Use Decision Making by the New Diversified Entrants in the Wood-Based Industry. Major Advisers: Profs. Gregory Brown and Paul Ellefson.

Michael Thomas Osterholm, Edina

B.A. '75, Luther College; M.S. '78, University of Minnesota. Major: Environmental Health. Minor: Epidemiology. Thesis: Groundwater in Southeastern Minnesota. Major Adviser: Prof. Conrad Straub.

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B.S. '76, Purdue University; M.S. '80, University of Minnesota. Major: Plant Breeding. Thesis: Selection for European Corn Borer Leaf- and Sheath-Collar-Feeding Resistance in Maize. Major Adviser: Prof. Jon Gadelmann.

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B.A. with distinction '76. University of Colorado. Major: Educational Psychology. Thesis: Influences of Mothers' Employment on Career Orientation and Career Choice of Adolescent Daughters. Major Advisers: Profs. Richard Weinberg and Patricia Faunce.

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B.S. with high honor '72. Northern Michigan University. Major: Statistics. Minor: Mathematics. Thesis: Treatment Allocation for Clinical Trials in Stages. Major Adviser: Prof. Donald Berry.

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B.S. cum laude '73. Technion—Israel Institute of Technology. Major: Economics. Thesis: Government Issued Indexed Bonds—Do They Improve Matters? Major Adviser: Prof. Neil Wallace.

Ing Peng, Taipei, Taiwan

B.S. '70. National Taiwan University; M.S. '75. University of Minnesota. Major: Animal Science. Minor: Biochemistry. Thesis: Studies on the Protein-Protein Interactions Between Soybean IIS Protein and Myosin. Major Adviser: Prof. C. E. Allen.

Howard Lee Person, Swea City,  
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B.S. '70, M.S. '72. Iowa State University. Major: Agricultural Engineering. Thesis: The Anaerobic Filter for Treating Liquid Swine Wastes. Major Adviser: Prof. Philip Goodrich.

Carroll Eugene Peter, Roseville

B.S. '51, M.A. '58. University of Minnesota. Major: Education. Thesis: Environmental Change in Three Four-Year Denominational Colleges, 1971 and 1979. Major Advisers: Profs. Robert Keller and Theodore Kellogg.

J. Porta, Tulsa, Okla.

B.S. '67. Oklahoma State University; M.S. '65. University of Minnesota. Major: Biometry. Minor: Statistics. Thesis: Biometric Aspects of Studies of Associations Between Histocompatibility Antigens and Disease. Major Adviser: Prof. Richard McHugh.

John Earl Preece, Ashland, N.H.

B.S. '74. University of New Hampshire; M.S. '77. University of Minnesota. Major: Horticulture. Thesis: The Influence of Apical Dominance in *Lycopersicon Esculentum* Mill. Stock Plants on *In Vitro* Growth and Differentiation of Leaf Explants. Major Adviser: Prof. Paul Read.

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B.S. '72. Arya-Mehr University; M.S. '78. University of Minnesota. Major: Computer and Information Sciences. Thesis: Concurrent Updates Problem and Synchronization in Distributed Database Systems. Major Adviser: Prof. William Franta.

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B.A. '64. University of Minnesota. Major: Microbiology. Thesis: Alterations in the Glycocalyx of a Lymphoblastoid and a Macrophage-Like Cell Line Following Fc Receptor-Ligand Interaction. Major Adviser: Prof. Steven Douglas.

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B.A. magna cum laude '65. Alma College; M.A. '67. Kent State University. Major: Educational Psychology. Minor: Psychology. Thesis: Pre-Adolescent and Adolescent Female Sex-Role Identity as a Function of Ego Development Level and Parental Sex-Role Identity. Major Adviser: Prof. Marian Hall.

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B.A. cum laude '73. Ohio State University; M.A. '80. University of Minnesota. Major: Psychology. Thesis: Change in Vocational Interests After Disability. Major Adviser: Prof. Gary Athelstan.

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B.S. with distinction '76. University of Kansas. Major: Chemistry. Thesis: Magnesium-25 Nuclear Magnetic Resonance as a Probe of Metal Ion Interactions With Biological Macromolecules. Major Adviser: Prof. Robert Bryant.

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Diploma '75. Swiss Federal Institute of Technology. Major: Chemical Engineering. Thesis: Nonlinear Estimation Methods for Tubular Reactors. Major Adviser: Prof. George Stephanopoulos.

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B.A. '67, M.A. '71. University of Minnesota. Major: Theatre Arts. Thesis: Paradigm Change in Pär Lagerkvist's Crucifixion Pentalogy. Major Advisers: Profs. Virginia Fredricks and J. A. Simpson.



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A.B. '69, Cornell University. Major: Psychology.  
Thesis: The Suspension of Perceptual Closure:  
Theory and Phenomenology. Major Adviser: Prof.  
Auke Tellegen.

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Indianapolis, Ind.

B.A. '71, Villanova University; B.M. '74, Butler  
University; M.Mus. '76, University of Hartford.  
Major: Music. Thesis: *Masque—A Story of Pup-  
pets, Poets, Kings and Clowns—in Seven Scenes  
for Nine Wind Instruments, Percussion, Piano and  
Strings.* Major Adviser: Prof. Paul Fetler.

Mark C. Schug, Minneapolis

B.S. '70, M.A. '73, University of Minnesota. Major:  
Education. Thesis: *The Development of Economic  
Reasoning in Children and Adolescents.* Major  
Adviser: Prof. James Mackey.

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B.S.Ed. '59, Dr. Martin Luther College; B.S. '61,  
M.S. '67, Mankato State College. Major: Educa-  
tion. Thesis: *Implementing Mainstreaming in Wis-  
consin Synod Elementary Schools.* Major Advisers:  
Profs. Robert Keller and Maynard Reynolds.

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B.A. '56, Westmar College; M.A. '67, University of  
Colorado. Major: Education. Minor: German. The-  
sis: *The Comparative Effects of Four Methods of  
Treating Free-Writing Assignments on the Second  
Language Skills and Attitudes of Students in Col-  
lege Level First Year German.* Major Adviser:  
Prof. Helen Jorstad.

Robert Allen Seybold, Trotwood,  
Ohio

B.A. '72, College of William and Mary. Major:  
Educational Psychology. Thesis: *Effects of Coun-  
selor Self-Disclosure Portraying Counselor as Simi-  
lar or Dissimilar to Clients.* Major Adviser: Prof.  
Warren Shaffer.

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A.B. '70, Douglass College; M.S.W. '73, Rutgers  
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Intergovernmental Health Care Network: The  
End Stage Renal Disease Program.* Major Adviser:  
Prof. Roberta Simmons.

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B.A. magna cum laude '72, Brown University.  
Major: Mathematics. Minor: Internal. Thesis: *The  
Second Variation of the Pontrjagin Number of a  
Four Dimensional Manifold Embedded in Euclid-  
ean Eight Space.* Major Adviser: Prof. William  
Pohl.

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B.S. '74, National Taiwan University; M.S. '77,  
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Biochemistry. Thesis: *Copper Metabolism in Nor-  
mal Dogs and Bedlington Terriers.* Major Advisers:  
Profs. Clifford Gastineau and Charles Owen.

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B.A. '70, M.A. '78, Chulalongkorn University;  
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cation. Thesis: *Acquisition of a Mathematical Con-  
cept by Children Using Prototype and Skill Devel-  
opment Instructional Presentation Forms.* Major  
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Youngers.

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B.Pharm. '71, Taipei Medical College; M.S. '75,  
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nary Toxicity.* Major Adviser: Prof. Mark Mout-  
gomery.

Marijo Crimont Toner, Juneau,  
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B.A. '69, M.A. '71, University of Portland. Major:  
Theatre Arts. Minor: Architecture. Thesis: *Arch-  
itect and Theatre: Ralph Rapson.* Major Adviser:  
Prof. Wendell Josal.

John Clendenin Townsend, Detroit,  
Mich.

A.B. '63, Wayne State University; M.A. '66, Uni-  
versity of Pittsburgh. Major: American Studies.  
Thesis: *Running the Gauntlet: Cultural Sources of  
Violence Against the I.W.W.* Major Adviser: Prof.  
Paul Murphy.

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B.A. '69, Carthage College; M.A. '78, University of  
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an Industrial Proletariat: Black Milwaukee, 1915-  
1945.* Major Adviser: Prof. John Modell.

Pei-Kuo Tsai, Taipei, Taiwan

B.S. '70, Tunghai University; M.S. '75, North  
Texas State University. Major: Biochemistry. Mi-  
nor: Chemistry. Thesis: *The Purification and  
Characterization of Adenosylcobalamin-Depen-  
dent Ribonucleotide Reductase From *Corynebac-  
terium nephridii*.* Major Adviser: Prof. Harry  
Hogenkamp.

Matthew Ira Ullman, Seattle, Wash.

B.A. with distinction '74, Swarthmore College.  
Major: Psychology. Thesis: *An MMPI Study of the  
Relationship Between Personality and Criminal  
Sexual Behavior.* Major Adviser: Prof. James  
Butcher.

Paul Frederick Umbeck, Downers Grove, Ill.

B.A. '70, Elmhurst College; B.S. '74, M.S. '76, Northern Illinois University. Major: Plant Breeding. Thesis: Evaluation and Selection for Inhibitor Resistance in Maize (*Zea Mays L.*) Tissue. Major Adviser: Prof. Burle Gengenbach.

Charles David Vale, Roseville

B.A. '72, Boise State College. Major: Psychology. Thesis: Development and Evaluation of an Adaptive Testing Strategy for Use in Multidimensional Interest Assessment. Major Adviser: Prof. David Weiss.

Joan Rae Vigushin, Minneapolis

B.S. with distinction '69, University of Rochester; M.S. '74, State University College, Brockport; A.M. '76, University of Michigan. Major: Educational Psychology. Thesis: Effects of a Self-Help Support Program for Students in the Helping Fields. Major Adviser: Prof. Warren Shaffer.

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B.S. '70, Iowa State University; M.A. '76, University of Minnesota. Major: Classical Area Studies. Thesis: A Computer Simulation of the House Construction Activity System at Nichoria in S.W. Greece. Major Adviser: Prof. William McDonald.

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A.B. '71, Wheaton College; M.A. '76, University of Minnesota. Major: Education. Thesis: A Study of the Encoding Vs. Memory Storage Function in College Notetaking. Major Adviser: Prof. Alton Raygor.

Lee Forrest Werth, Helena, Mont.

B.S. '66, M.S. '72, University of Montana. Major: Forestry. Thesis: A Comparison of Remote Sensing Technique Applications to Wetland Vegetation Classification in Minnesota's Seven-County Metropolitan Area. Major Adviser: Prof. Merle Meyer.

Philip Henry Westra, Randolph, Wis.

B.A. '71, University of Wisconsin; B.A. '73, Calvin College. Major: Agronomy. Minor: Plant Physiology. Thesis: Control of Quackgrass (*Agropyron Repens*) With Glyphosate. Major Adviser: Prof. Donald Wyse.

Colleen Ann Wieck, Carlton

B.A. summa cum laude '71, University of Minnesota, Duluth; B.S. '72, Bemidji State College; M.S. '75, Wisconsin State University. Major: Educational Psychology. Thesis: The Cost of Public and Community Residential Care for Mentally Retarded People in the United States. Major Adviser: Prof. Robert Bruininks.

David Norval Wigtil, Moorhead

B.A. summa cum laude '72, Concordia College; M.A. '75, University of Minnesota. Major: Classical Area Studies. Thesis: The Translation of Religious Texts in the Greco-Roman World. Major Adviser: Prof. A. T. Kraabel.

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B.S. with honors '70, Chinese University of Hong Kong; M.A. '74, University of Minnesota. Major: Mass Communication. Thesis: Nonconsistency in Counter-Attitudinal Communication. Major Advisers: Profs. Roy Carter and Robert Lindsay.

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A.B. '69, Duke University; M.A. '73, University of Minnesota. Major: Anthropology. Thesis: Developmental Sequences in Amahuaca Society. Major Adviser: Prof. Stephen Gudeman.

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B.M.E. with distinction '73, M.S.C.E. '77, University of Minnesota. Major: Civil Engineering. Thesis: Anaerobic Digestion of Organic Residues for Methane Production: A Bio-Kinetic Approach. Major Adviser: Prof. Walter Maier.

Louis Levi Zachary, Bloomington

B.A. '58, Mankato State Teachers College; M.S. '69, University of Wisconsin. Major: Educational Administration. Thesis: Attitudes of Minnesota Community College Personnel Concerning Affirmative Action. Major Advisers: Profs. William Ammentorp and Don Morgan.

Solveig Pauline Tweet Zempel, Roseau

B.A. magna cum laude '69, St. Olaf College; M.A. '71, University of Minnesota. Major: Scandinavian. Thesis: Language Use in the Novels of Johannes B. Wist: A Study of Bilingualism in Literature. Major Adviser: Prof. Nils Hasselmo.

Thomas Edmund Zipperian, Helena, Mont.

B.S.E.E. with distinction '75, Montana State University; M.S.E.E. '78, University of Minnesota. Major: Electrical Engineering. Thesis: A Study of the Channel-Collector and Integrated-Cascade Transistors. Major Adviser: Prof. Raymond Warner, Jr.

## Doctor of Philosophy

MAYO GRADUATE SCHOOL OF MEDICINE

Richard Marshall Edwards, Aurora,  
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B.S. '73, M.S. '77, University of Oklahoma. Major: Physiology. Thesis: Cellular Action of Vasopressin in Isolated Renal Tubules and Nephrogenic Diabetes Insipidus. Major Adviser: Prof. T. P. Douza.

Dagne Lu Florine, Rochester

B.S. '75, University of Minnesota. Major: Pathology. Thesis: Differentiation-Specific Growth Arrest State in the G<sub>1</sub> Phase of the Cell Cycle. Major Adviser: Prof. Robert Scott.

## Doctor of Philosophy in Dermatology

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Marc Ellis Goldyne, San Francisco,  
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A.B. with distinction '66, University of California, Berkeley; M.D. '70, University of California, San Francisco. Major: Dermatology. Minor: Pathology. Thesis: Radioimmunoassays for Prostaglandin E<sub>2</sub> and F: Applications to the Study of Prostaglandin Synthesis in Human Skin. Major Adviser: Prof. Richard Winkelmann.

## Master of Aerospace Engineering

Stephen Carl Pederson, Sturtevant,  
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B.A.E.M. '78, University of Minnesota. Major: Aerospace Engineering. Thesis: Analysis of Flammability Hazard in the Effusional Separation of Hydrogen and Oxygen From Water. Major Advisers: Profs. Edward Fletcher and William Garrard.

## Master of Architecture

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B.E. '71, Hanyang University. Major: Architecture. Thesis: The Seoul Museum of Fine Arts. Major Adviser: Prof. Leonard Parker.

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B.A.E.D. '74, University of Washington. Major: Architecture. Thesis: Long Term Geriatric Care Facility. Major Adviser: Prof. Valerius Michelson.

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B.F.A. '74, University of Colorado. Major: Architecture. Thesis: Mixed Use Development, St. Paul. Major Adviser: Prof. Richard Morrill.

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B.E.D. '78, Miami University. Major: Architecture. Thesis: Milwaukee Lakefront Design Competition. Major Adviser: Prof. Roger Clemence.

Lyman Reginald Smith, Minneapolis

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## Master of Arts

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- Marjorie Brockway Anderson, Edina  
B.S. '45. State Teachers College, Kirksville; M.S. '50. Washington University. Major: Distributive Education. Major Adviser: Prof. Mary Klaurens.
- Vicki Johnston Anderson, Minneapolis  
B.A. '75. University of Minnesota. Major: Communication Disorders. Thesis: Intelligibility Performance of High-Frequency Loss Subjects With Amplification Through 6 KHz. Major Adviser: Prof. Timothy Doyle.
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B.E.S. '77. University of Minnesota. Major: Criminal Justice Studies. Thesis: The Relationship Between Mens Rea as an Element of Criminal Liability and Insanity as an Affirmative Defense. Major Adviser: Prof. Joel Samaha.
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Major: History. Minor: Geography. Thesis: Some Social Aspects of the London Blitz. The Parish of St. James 1940-41. Major Adviser: Prof. Stanford Lehmberg.
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munication Disorders. Thesis: Perception and Pro-  
duction of Voice and Place: A Case Study. Major  
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B.A. '68. University of Minnesota. Major: Indus-  
trial Relations. Thesis: A Pilot Study of the Career  
Patterns of EEC/AA Professionals. Major Adviser:  
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Amplification and Lombard Feedback Manipula-  
tions on Children With Articulation Defects. Major  
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### **Master of Electrical Engineering**

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### **Master of Fine Arts**

Kenneth Carroll Bryant, Santa Ana,  
Calif.  
A.B. with distinction '78, Occidental College. Major: Theatre Arts. Major Adviser: Prof. H. L. Adey.

Gabriele Anna Margot Ellertson, St.  
Paul  
B.F.A. '77, University of Minnesota. Major: Studio Arts. Minor: Art History. Major Adviser: Prof. Karl Bethke.

Joel Morris Lillethun, La Crosse,  
Wis.  
B.M.E. with high distinction '74, Indiana University. Major: Music. Major Adviser: Prof. Thomas Lancaster.

Ronald Merrill White, Minneapolis  
B.Mus. '58, St. Paul Bible College; B.A. with honors '72, Bethel College. Major: Music. Major Adviser: Prof. Thomas Lancaster.

Margaret Mary Zeleny, St. Paul  
B.A. '62, College of St. Catherine. Major: Music. Major Adviser: Prof. Roy Schuessler.

## Master of Metallurgy and Materials Science

James Peter Paulos, Minneapolis  
B.S.Ch.E. '73, University of Wisconsin. Major: Metallurgy and Materials Science. Project: Effect of Draw Ratio on the Permeability of Gases in Extruded Polyethylene Film. Major Adviser: Prof. Edwin Thomas.

## Master of Science

Katerina Adam

Diploma '78, National Technical University of Athens. Major: Metallurgy and Materials Science. Minor: Mineral Engineering. Thesis: A Thermogravimetric Investigation of the Oxidation Behavior of Some Common Metal Chlorides. Major Adviser: Prof. William Gerberich.

Paul David Addis, Hyattsville, Md.

B.A. '75, University of Maryland. Major: Environmental Health. Major Adviser: Prof. Conrad Straub.

Elizabeth Moen Alton,

Williamstown, Mass.

B.A. '77, Williams College. Major: Veterinary Anatomy. Thesis: A Morphological and Stereological Study of Equine Articular Cartilage. Major Adviser: Prof. Norman Wilsman.

Isabel Hodgson Anderson, Edina

B.A. '77, University of Minnesota. Major: Nutrition. Major Adviser: Prof. Lura Morse.

Farhad Xerxes Anklesaria,

Jamshedpur, India

B.S. magna cum laude '77, College of Charleston. Major: Genetics. Major Adviser: Prof. Franklin Enfield.

Peggy Ann Atwood, Minneapolis

B.A. magna cum laude '76, Gustavus Adolphus College. Major: Public Health. Major Adviser: Prof. E. C. Pflug.

Susan Jean Beck, St. Paul

B.S. summa cum laude '76, Moorhead State College. Major: Medical Technology. Thesis: Ultraviolet Induced DNA Repair Synthesis in Lymphocytes From Aged Humans. Major Advisers: Profs. Helen Hallgren and J. J. McCullough.

Erica Jean Behnke, Rochester, N.Y.

B.S. '78, Michigan State University. Major: Animal Physiology. Thesis: Effect of Proteins on Motility and Freezability of Bovine Spermatozoa. Major Adviser: Prof. Edmund Graham.

James Garrett Bradley, Colorado

Springs, Colo.

B.A. cum laude '76, Whitman College. Major: Biochemistry. Minor: Chemistry. Thesis: The Synthesis and Characterization of Spin-Labeled Adenine Nucleotides. Major Adviser: Prof. Harry Hogenkamp.

Michael Thomas Brandt, East

Brunswick, N.J.

B.S. '78, Rutgers University. Major: Environmental Health. Major Adviser: Prof. Charles McJilton.

Michael David Bruder, Lyndhurst,

Ohio

B.S. '78, Ohio State University. Major: Forestry. Major Adviser: Prof. Timothy Knopp.

Mary Ann Bruskevitz, Appleton,

Wis.

B.S. '73, Wisconsin State University. Oshkosh. Major: Nursing. Major Adviser: Prof. Mariah Snyder.

Charlene Ann Bumol, Rosemount

B.A. '77, Hamline University. Major: Microbiology. Thesis: The Induction of Cytotoxic T Lymphocytes by Viral Peptides. Major Adviser: Prof. David Fan.

Richel E. Burkey, Reading, Pa.

B.S. summa cum laude '77, Muhlenberg College. Major: Ecology. Major Advisers: Profs. Frank McKinney and David Parmelee.

Floyd Patrick Burr, Minneapolis

B.S. '70, Spring Hill College. Major: Computer and Information Sciences. Major Adviser: Prof. William Franta.

Phyllis C. Burrows, Appleton, Wis.

B.S. '65, Johns Hopkins University. Major: Nursing. Major Adviser: Prof. Evangeline Gronseth.

Marlene G. Buskirk, New Brighton

B.S.N. cum laude '58, Hamline University. Major: Nursing. Major Adviser: Prof. Elaine Mansfield.

Kathleen Ann Byrne

B.S. '74, College of St. Teresa. Major: Nursing. Major Adviser: Prof. Kathleen Dineen.

Paul Russell Carter, Park Rapids  
B.S. '78, North Dakota State University. Major: Agronomy. Thesis: Effect of Soil Moisture and Harvest Management on Alfalfa (*Medicago Sativa L.*) Root Distribution and Herbage Yield. Major Adviser: Prof. Craig Sheaffer.

Simon Robespier Castillo, Calabozo, Venezuela  
Ingeniero Agronomo '75, Universidad Central de Venezuela. Major: Soil Science. Thesis: Effects of Soil Compaction and Applied Mechanical Stress on Plant Shoot and Root Growth, Grain Yields, and Nutrient Uptake. Major Adviser: Prof. Robert Dowdy.

John James Cesla, Duluth  
B.S. cum laude '79, University of Minnesota, Duluth. Major: Environmental Health. Major Adviser: Prof. Orlando Ruschmeyer.

Philip Andrew Cochran, Bensenville, Ill.  
B.A. with high honors '77, St. Mary's College. Major: Fisheries. Minor: Statistics. Thesis: Seasonal Aspects of the Diet and Daily Ration of Largemouth Bass (*Micropterus Salmoides*). Major Adviser: Prof. Ira Adelman.

Edmundo Antonio Cox, Colón, Panamá  
B.A. '70, Hamline University. Major: Medical Technology. Thesis: Vitamin D Binding Globulin (GC): Subtypes of Selected North and Central American Populations. Major Adviser: Prof. Herbert Polesky.

Michael Joseph Coyne, Bethel Park, Pa.  
B.S. with high distinction '79, Pennsylvania State University. Major: Animal Physiology. Major Adviser: Prof. Jonathon Wheaton.

William Earl Davis, Winona  
B.A. with honorable mention '62, Luther College; B.D. '67, Luther Theological Seminary; M.D. '71, University of Minnesota. Major: Family Practice and Community Health. Major Adviser: Prof. John Kelly.

Dennis James Delaney, El Paso, Ill.  
B.S. with high honors '78, University of Illinois. Major: Agronomy. Thesis: Seed Lot Differences Within Two Varieties of Hard-Red Spring Wheat—ERA and Olaf. Major Adviser: Prof. Lawrence Smith.

Lonnie Earl Dittrick, Berea, Ohio  
B.S. cum laude '78, Kent State University. Major: Entomology. Minor: Statistics. Thesis: Developmental Characteristics of *Macrocentrus grandii* as Influenced by Temperature and Instar of Its Host, the European Corn Borer. Major Adviser: Prof. H. C. Chiang.

Claudia Ardette Dodge, Minneapolis  
B.S. '65, University of Minnesota. Major: Agricultural Economics. Major Adviser: Prof. Malcolm Purvis.

Mary Elizabeth Doucette, Rochester  
B.S. '69, College of St. Teresa. Major: Nursing. Thesis: A Study of the Characteristics of the Elderly Attending the Day Care "Center for Life" in Rochester, Minnesota. Major Adviser: Prof. Floris King.

Bruce Ekholm, West St. Paul  
B.A. cum laude '78, St. Olaf College. Major: Statistics. Major Adviser: Prof. Kinley Lantz.

Mahmoud Elsayed Eldeeb, Cairo, Egypt  
B.D.M.S. '77, Cairo University. Major: Dentistry. Thesis: An In Vivo Study of Using Different Materials for Repairing Bifurcation Perforations in Dogs' Teeth. Major Adviser: Prof. James Jensen.

Barbara F. Eller, Onamia  
B.S. with high honors '75, University of Maryland. Major: Nursing. Major Adviser: Prof. Mariah Snyder.

Paul Mendell Erickson, South St. Paul  
B.A. '68, Bethel College; M.S. '76, Dr. Opt. '76, Pacific University. Major: Biometry and Health Information Systems. Thesis: Data Sensitivity of Compartmental Models. Major Adviser: Prof. Eugene Ackerman.

Maureen Patricia Etzel, Minnetonka  
B.S. '62, College of St. Catherine. Project: Nursing. Major Adviser: Prof. Diane Kjervik.

Frederick H. Fellows, Boston, Mass.  
B.S. '76, Yale University. Major: Physics. Minor: History of Science and Technology. Major Adviser: Prof. Roger Stuewer.

Catherine Leindecker Foster, St. Louis Park  
B.S. with distinction '71, University of Minnesota. Major: Medical Technology. Minor: Biochemistry. Thesis: Gas Chromatographic Determination of Catecholamine Metabolites. Major Adviser: Prof. Esther Freier.

Glenn Richard Furnier, Farmington Hills, Mich.  
B.S. with distinction '78, University of Michigan. Major: Plant Pathology. Minor: Plant Breeding. Thesis: Investigation of Compatibility in *Gremmeniella abietina*. Major Adviser: Prof. Neil Anderson.

David Ward Gardner,  
Southampton, England

B.Sc. with second class honors '75, University of London. Major: Plant Pathology. Minor: Statistics. Thesis: The Chemistry of Rain and Its Effects Upon Vegetation in the Vicinity of a Sulfur Dioxide Point Source. Major Adviser: Prof. Sagar Krupa.

Bruce Scott Garley, Stillwater

B.S. with distinction '74, University of Minnesota. Major: Horticulture. Major Adviser: Prof. Cecil Stushnoff.

Donna M. Gau, St. Cloud

B.A. '73, University of Minnesota; B.S. '77, New York University. Major: Nursing. Major Adviser: Prof. Kathleen Dineen.

Pascal Jose Gbikpi, Evian, France

Diplome '76, Institut National Agronomique Paris-Grignon. Major: Agricultural Economics. Major Adviser: Prof. Terry Roe.

Sutjipto Achmad Hadikusumo,  
Kebumen, Indonesia

Ir. '70, Universitas Gadjah Mada. Major: Forestry. Major Adviser: Prof. Robert Erickson.

Lori Gail Hankenson, Portland,  
Oregon

B.A. '75, Lewis and Clark College. Major: Genetics. Thesis: Induction and Characterization of Human-Mouse Somatic Cell Hybrids for the Production of HCG-Beta Subunit. Major Adviser: Prof. Nancy Wang.

Julia Ann Hanna, Little Canada

B.S. with honors '67, University of Illinois. Major: Hospital Pharmacy. Major Adviser: Prof. Albert Wertheimer.

William Warren Hays, Grand  
Island, Neb.

B.S. '77, University of Nebraska. Major: Genetics. Major Adviser: Prof. Huber Warner.

William Edward Healy, Jr., St.  
Paul

B.S. '77, University of Minnesota. Major: Horticulture. Minor: Plant Physiology. Thesis: Flowering Requirements of *Alstroemeria Regina*. Major Adviser: Prof. Harold Wilkins.

Mich Bradley Hein, St. Paul

Major: Plant Physiology. Minor: Horticulture. Thesis: Analysis of Mobile Signals Involved in Source-Sink Relations in Fruiting Plants. Major Adviser: Prof. Mark Brenner.

Josephine Cecilia Heindl, Silver  
Spring, Md.

B.A. summa cum laude '77, Case Western Reserve University. Major: Plant Physiology. Thesis: Effect of Photoperiod on Root Produced Cytokinins and Functional Leaf Senescence in Soybean. Major Adviser: Prof. William Brun.

Jonathan Paul Hellerstein

B.A. '77, Macalester College. Major: Environmental Health. Major Adviser: Prof. Orlando Ruschmeyer.

Patrick Maurice Hennessy, Superior,  
Wis.

B.S. '79, University of Minnesota. Major: Environmental Health. Major Adviser: Prof. Conrad Straub.

Curtis Brian Hill, Manitowoc, Wis.

B.S. '77, University of Wisconsin, Madison. Major: Plant Pathology. Minor: Plant Breeding. Thesis: Studies of *Rhizoctonia solani* Isolates From Potato. Major Adviser: Prof. Neil Anderson.

Austin Norval Indritz, Minneapolis

B.S. '76, University of Minnesota. Major: Nutrition. Minor: Physiology. Thesis: Mineral Content of Bones During Growth and Mineral Deficiency. Major Adviser: Prof. Vincent Hegarty.

Nikki Lene Jackson, Minneapolis

B.A. '73, B.S. '74, Winona State College. Major: Medical Technology. Thesis: The Development and Evaluation of a Rapid Mixed Lymphocyte Culture Test for HLA-D Matching. Major Adviser: Prof. Helen Hallgren.

Gary Robert Jernberg, St. Paul

B.Ch.E. '69, B.S. with distinction '76, D.D.S. '78, University of Minnesota. Major: Dentistry. Thesis: The Relationship Between Proximal Tooth Open Contacts and Periodontal Disease. Major Adviser: Prof. Carl Bandt.

Mary Margaret Jones, Atlanta, Ga.

B.A. '78, College of St. Catherine. Major: Nursing. Minor: Educational Psychology. Thesis: Effects of Photo-Therapy on Maternal Perception of the Newborn and the Pattern of Maternal/Infant Interaction. Major Adviser: Prof. Irene Matousek.

Mary Ellen Jung, West Allis, Wis.

B.S. '78, Carroll College. Major: Environmental Health. Major Adviser: Prof. Charles McJilton.

Ann Wilde Kelly, Rochester

B.S. cum laude '59, University of Washington. Major: Nursing. Major Adviser: Prof. Kathleen Maykoski.



Louise Elaine Keough, Great Falls,  
Mont.  
B.S. '73. Montana State University. Major: Chemistry. Thesis: Approaches Towards the Synthesis of dl-Quadrone. Major Adviser: Prof. Thomas Hoye.

Prakash Ramnathpur Keshaviah,  
Minneapolis  
B.Tech. first class '67. Indian Institute of Technology; M.S.M.E. '70. Ph.D. '74. University of Minnesota. Major: Physiology. Minor: Biomedical Engineering. Thesis: Body Fluid Shifts and Cardiovascular Changes in Hemodialysis. Major Adviser: Prof. John Johnson.

Lonnie James King, Austin, Tex.  
B.S. '66. D.V.M. '70. Ohio State University. Major: Veterinary Microbiology. Thesis: Design and Implementation of a Computerized Data Base for the Management and Analysis of Research Data on Tuberculosis, Paratuberculosis and Brucellosis of Cattle. Major Adviser: Prof. Donald Johnson.

RoxAnn Klugman, Minneapolis  
B.A. '71. D.D.S. '78. University of Minnesota. Major: Dentistry. Thesis: The Correlation of Gingival Indices, Gingival Crevicular Fluid Flow, Pocket Depth and Gingival Histology. Major Adviser: Prof. Carl Bandt.

Joseph Frank Kukla, Lake Forest,  
Calif.  
B.S. '60. Drexel Institute of Technology; M.P.H. '67. Yale University School of Medicine. Major: Environmental Health. Major Adviser: Prof. Donald Barber.

Jerome Nicholas Lensing, St. Paul  
B.S. '74. University of Minnesota. Major: Soil Science. Thesis: Influence of *Rhizobium phaseoli* Strains and Nitrogen on Phaseolus and Nitrogen Content. Major Adviser: Prof. George Han.

Sue-Fong Leong, Queens, N.Y.  
B.S. cum laude '78. Long Island University. Major: Social and Administrative Pharmacy. Major Adviser: Prof. Albert Wertheimer.

Robert Frank Lewis, Shoreview  
B.A. '68. University of Minnesota. Major: Environmental Health. Major Adviser: Prof. Harold Paulus.

Mary Jane Lis, Wethersfield, Conn.  
B.S. '77. University of Connecticut. Major: Animal Science. Minor: Statistics. Thesis: The Efficacy of Ewe Milk Substitutes and Concentrates on Pre- and Post-Weaning Performance of Young Lambs. Major Adviser: Prof. Robert Jordan.

Gang Liu, Taipei, Taiwan  
B.S. '77. National Taiwan University. Major: Mechanics. Major Adviser: Prof. William Garrard.

John Carl Luhman, Minneapolis  
B.S. '71. University of Minnesota. Major: Entomology. Thesis: A Revision of the Nearctic Endasya (Hymenoptera: Ichneumonidae, Cryptinae). Major Adviser: Prof. Edwin Cook.

Togar Lumbantobing, Bogor,  
Indonesia  
Ir. '73. Institut Pertanian Bogor. Major: Forestry. Major Adviser: Prof. Robert Erickson.

Kathleen Marion Lundberg,  
Minneapolis  
B.A. cum laude '70. University of Minnesota. Major: Biometry and Health Information Systems. Major Adviser: Prof. Lael Gatewood.

Mary Louise McDonald, St. Paul  
B.S.N. with distinction '73. University of Minnesota. Major: Public Health. Major Adviser: Prof. Marilee Miller.

LeAnn Anderson McNeil  
B.A. '78. College of St. Catherine. Major: Public Health. Major Adviser: Prof. Marilee Miller.

Julie Ann Miskimen, Dayton, Ohio  
B.S. magna cum laude '74. University of Dayton. Major: Microbiology. Thesis: Characteristics of the Allogeneic Stimulator Cell in Murine Mixed Leukocyte Cultures. Major Adviser: Prof. Jon Schmidtke.

Gloria M. Mondor, Stillwater  
B.S. magna cum laude '73. Winona State College. Major: Nursing. Major Adviser: Prof. Sharon Rising.

Patricia Ann Monick, Sioux Falls,  
S.D.  
B.S. '78. University of Minnesota. Major: Home Economics. Major Adviser: Prof. Peter Brown.

Sharon Muret-Wagstaff, Minneapolis  
B.S. '64. Florida State University. Major: Public Health. Major Adviser: Prof. Charlotte Pflug.

Amitabh Narain, Ranchi, India  
B.Tech. with first class honours '78. Indian Institute of Technology. Major: Mechanics. Major Adviser: Prof. Daniel Joseph.

Joseph George Nasser  
B.S. '69. D.D.S. '74. McGill University. Major: Dentistry. Thesis: Estrogen Receptors in Human Breast Cancer: Detection by Immunofluorescence and Comparison With Protamine Sulfate Radioassay. Major Adviser: Prof. Daniel Waite.

Kevin Lyle Nelson, Hector  
B.S. '79. University of Minnesota, Duluth. Major: Environmental Health. Major Adviser: Prof. Donald Barber.

**Gerard Nimis, St. Paul**

B.S. with high distinction '77, University of Minnesota. Major: Animal Science. Minor: Statistics. Thesis: Evaluation of Breeds of Swine on Total Economic Performance. Major Adviser: Prof. William Boylan.

**Alejandro Obregon, Mexico City,  
Mexico**

D.D.S. '76, Universidad Nacional Autonoma de Mexico. Major: Dentistry. Thesis: A Comparative Study of the Effects on Color of the Opaque and Porcelain Surface Texture in the Ceramometal Restoration. Major Adviser: Prof. Richard Goodkind.

**Sandra Jean Olsen, Pierre, S.D.**

B.A. '75, College of St. Scholastica. Major: Nursing. Major Adviser: Prof. Kathleen Maykoski.

**Daniel Foster Palmer, St. Paul**

B.S. with distinction '74, University of Maine. Major: Entomology. Thesis: Response of Plant Height in Corn Lines to Corn Rootworm (*Diabrotica* Spp.) Infestation. Major Adviser: Prof. Huai-Chang Chiang.

**Mugure Itotia Pyron, Kabete,  
Kenya**

B.A. '76, College of St. Teresa. Major: Pharmaceutics. Thesis: Analysis of Acetazolamide in Plasma and Urine, and Preliminary Pharmacokinetic Studies in the Rabbit. Major Adviser: Prof. Ronald Sawchuk.

**Marcia Ann Renaux, Millville**

B.S. '74, Winona State College. Major: Nursing. Major Adviser: Prof. A. M. Sime.

**Mary Nicolette Rosholt, Dutton,  
Mont.**

B.S. with distinction '74, Montana State University. Major: Nutrition. Minor: Biochemistry. Thesis: Effects of Streptozotocin-Diabetes on Muscle and Bone in Rats. Major Adviser: Prof. Vincent Hegarty.

**Wendy Wellnitz Ruen, St. Paul**

B.S. with high honor '76, Michigan State University. Major: Food Science. Thesis: Analysis of the Fruity Off-Flavor in Milk Using Headspace Concentration Capillary Column Gas Chromatography. Major Adviser: Prof. Elmer Thomas.

**Jo Ann Branson Ruiz-Bueno,  
Willoughby, Ohio**

B.S.N. magna cum laude '79, Cleveland State University. Major: Nursing. Major Adviser: Prof. Janis Beckstrand.

**Susan Rutherford, Palo Alto, Calif.**

B.S. with highest honors '75, University of California, Riverside. Major: Forestry. Major Adviser: Prof. Vilis Kurmis.

**Madeline Jean Schreiber,  
Minneapolis**

B.S. with high distinction '75, Wayne State University. Major: Nursing. Major Adviser: Prof. Isabel Harris.

**Barbara Joan Schroeder, Rochester**

B.S. '78, College of St. Teresa. Major: Nursing. Major Adviser: Prof. Mariah Snyder.

**Robert Joel Schwartz**

B.A. cum laude '77, Claremont Men's College. Major: Agricultural Economics. Major Adviser: Prof. Terry Roe.

**Padam Prasad Sharma, Jhapa, Nepal**

B.S. with honors '71, University of Udaipur; B.S. with distinction '78, University of Minnesota. Major: Soil Science. Minor: Agricultural Engineering. Thesis: Hydraulic Gradients and Vertical Infiltration Through Rain Formed Quasi-Seals on a Range of Minnesota Soils. Major Adviser: Prof. George Blake.

**Elisabeth Anne Slattery, St. Paul**

B.S. '77, College of St. Teresa. Major: Public Health. Major Adviser: Prof. Marilee Miller.

**Eric George Smeltzer, Waterbury,  
Vt.**

B.S. cum laude '76, Bates College. Major: Ecology. Thesis: The Influence of Fish on the Abundance of Algae in Clear Lake, Minnesota. Major Adviser: Prof. Joseph Shapiro.

**Joaquin Ferrer Soto**

Ingeniero Bioquimico '76, Instituto Tecnologica y de Estudios Superiores de Monterrey. Major: Animal Science. Major Adviser: Prof. John Donker.

**Terry Michael Spear, Butte, Mont.**

B.A. '75, University of Montana. Major: Environmental Health. Major Adviser: Prof. Charles McJilton.

**Susan Stade, Mount Prospect,, Ill.**

B.S. cum laude '78, Butler University. Major: Plant Physiology. Thesis: Biogenesis of Cytochrome *c* in Germinating Fungal Spores. Major Adviser: Prof. Robert Brambl.

**Gratia Muriel Steen, Superior, Wis.**

B.S. with highest honor '75, Wisconsin State College. Major: Nursing. Major Adviser: Prof. Evangeline Gronseth.

**Martha Kay Stoner**

B.S. with highest honors '77, University of California, Davis. Major: Nutrition. Minor: Food Science. Thesis: Muscle Cellularity Changes in Rats During Pregnancy, Lactation or Weight-Lifting. Major Adviser: Prof. Patricia Swan.

Mary C. Stuart, Lexington, Neb.  
B.S. Ag. '74, University of Nebraska. Major: Horticulture. Minor: Plant Physiology. Thesis: Use of Hydrophilic Polymers as Soil Amendments To Delay the Onset of Moisture Stress in Plants. Major Adviser: Prof. Paul Read.

Deborah Ann Thomas, Denver,  
Colo.

B.S. with high distinction '73, Colorado State University. Major: Nutrition. Major Adviser: Prof. Judith Brown.

Steven Arnold Thompson, Litchfield  
B.A. with highest honor '75, Hamline University. Major: Plant Breeding. Minor: Plant Physiology. Thesis: Lysine + Threonine Resistance in Corn: Genetic and Protein/Methionine Relationships. Major Adviser: Prof. Ronald Phillips.

James Pritchett Toombs, Elmhurst,  
Ill.

B.A. with honors '72, University of Iowa; B.S. '74, D.V.M. '76, University of Illinois. Major: Veterinary Surgery, Radiology, and Anesthesiology. Thesis: The Use of Bone Grafts in the Repair of Tibial Fractures in the Cat: A Comparison of Banked Cortical Allografts With Non-Banked Cortical Autografts. Major Adviser: Prof. Larry Wallace.

Patricia Ann Tovo, Chicago, Ill.

B.S. '77, Northern Illinois University. Major: Chemistry. Thesis:  $^{25}\text{Mg}$  NMR: The Interactions of  $\text{Mg}^{2+}$  With Nucleotides. Major Adviser: Prof. Robert Bryant.

JoEttA Ann Vernon, Jackson, Mich.

B.S.N. with distinction '75, University of Minnesota. Major: Nursing. Major Adviser: Prof. Mariah Snyder.

Julia Lucile Wannamaker,  
Minneapolis

B.S. '72, Duke University; M.P.H. '76, Northwestern University. Major: Epidemiology. Minor: Biometry and Health Information Systems. Major Adviser: Prof. Leonard Schuman.

Timothy Dean Wedekind, Cottage  
Grove

B.S. magna cum laude '75, University of Minnesota. Major: Physiology. Major Adviser: Prof. Eugene Grim.

Mark E. Werness, Minnetonka

B.A. '74, Carleton College. Major: Biometry and Health Information Systems. Major Adviser: Prof. Lynda Ellis.

Rosemary Dennis Wilson, Rochester

B.S. '77, College of St. Teresa. Major: Nursing. Major Adviser: Prof. Elaine Mansfield.

Vicki Leanna Wolter, Marshalltown,  
Iowa

B.S. '74, Iowa State University. Major: Medical Technology. Minor: Biochemistry. Thesis: Measurement of Human Antithyroglobulin Antibodies by an Immunoradiometric Method. Major Adviser: Prof. Lorraine Stewart.

Manjeli Yacouba, Fouban,  
Cameroon

Ing. Agronome '77, Universite de Yaounde. Major: Animal Science. Major Adviser: Prof. William Boylan.

Lucretia Naidi Yueh, Barrington,  
Ill.

B.S. '55, National Taiwan University. Major: Food Science. Major Adviser: Prof. Francis Busta.

Richard Thomas Zera, Minneapolis

B.A. '75, University of Minnesota. Major: Medicinal Chemistry. Thesis: The Use of D-(-)-Penicillamine in the Sequestration of Metabolites of Acetaminophen and Paraldehyde. Major Adviser: Prof. Herbert Nagasawa.

## Master of Science

UNIVERSITY OF MINNESOTA, DULUTH

Sidney John Curran

B.A. '76, Clark University. Major: Biology. Thesis: Algal Responses to Coal Leachates and Coal Distillates. Major Adviser: Prof. David Gerhart.

William Joseph Doucette

B.S. summa cum laude '78, University of Wisconsin, Superior. Major: Chemistry. Thesis: Impact of a New Point Source of Chloroorganics on the St. Louis River. Major Adviser: Prof. Ronald Caple.

John Chester Gavre

B.S. with honors '74, University of Wisconsin, Stevens Point. Major: Biology. Minor: Internal. Thesis: Effect of Depressed pH on the Survival, Growth, Reproduction, of Egg Development of the Pond Snail *Helisoma trivolvis*. Major Adviser: Prof. Blanchard Krogstad.

Rebecca Priscilla Judge

A.B. '76, Smith College. Major: Biology. Major Adviser: Prof. Blanchard Krogstad.

**William Fuller Matlack**

B.A. '76, Carleton College. Major: Geology. Minor: Internal. Thesis: Geology and Mineralization of the Duluth Complex-Virginia Formation Contact, Minnamax Deposit, St. Louis County, Minnesota. Major Adviser: Prof. Ralph Marsden.

**Elizabeth Ann Palmer**

B.S. cum laude '77, University of Wisconsin, Oshkosh. Major: Geology. Minor: Internal. Thesis: The Structure and Petrology of Precambrian Metamorphic Units in Northwestern Marathon County, Wisconsin. Major Adviser: Prof. James Grant.

**David John Stone**

B.S. '78, University of Wisconsin, River Falls. Major: Geology. Thesis: The Geology of the Upper Dunleith Formation (Prosser Member Galena Formation) of Middle Ordovician Age in Southeastern Minnesota. Major Adviser: Prof. David Darby.

**Thomas Walter Weber**

B.S. '78, University of Dayton. Major: Biology. Thesis: Response of Phytoplankton to Acidification in Experimental Streams. Major Adviser: Prof. Jack Hargis.

**Master of Science**

**MAYO GRADUATE SCHOOL OF MEDICINE**

**Frank Chiu-Wai Hui, Toledo, Ohio**

B.Sc. with honors '70, M.D. '73, University of British Columbia. Major: Orthopedic Surgery. Thesis: Force Analysis of the Elbow During Isometric Functions. Major Adviser: Prof. E. Y. Chao.

**Josef Karel Korinek, Houston, Tex.**

Ph.D. '74, Vanderbilt University. Major: Medicine. Thesis: The Effect of Vasoactive Intestinal Polypeptide With Liver. Major Adviser: Prof. V. L. Go.

**Bruce Albert Staats, Rochester**

B.S. with distinction '68, M.D. with high distinction '71, University of Nebraska. Major: Physiology. Minor: Biometry and Health Information Systems. Thesis: Effects of Changing Gas Properties on Maximal Expiratory Flow. Major Adviser: Prof. R. E. Hyatt.

**Master of Science in Agricultural Engineering**

**Thomas Franklin Scherer, Milaca**

B.Ag.E. with distinction '75, University of Minnesota. Major: Agricultural Engineering. Thesis: The Effects of Development on Water Wells in Unconsolidated Aquifers. Major Adviser: Prof. Donald Slack.

**Master of Science in Chemical Engineering**

**William Joseph Hickey,**

Indianapolis, Ind.  
B.S.Ch.E. '78, Purdue University. Major: Chemical Engineering. Thesis: Characterization and Rheology of Randomly Branched Polydimethyl Siloxanes. Major Adviser: Prof. Christopher Macosko.

**Samson Ally Jenekhe, Okpella,**

Nigeria  
B.S. with high honor '77, Michigan Technological University. Major: Chemical Engineering. Minor: Mathematics. Thesis: The Microstructure and Rheology of Clay Suspensions. Major Advisers: Profs. H. T. Davis and L. E. Scriven.

**Paul Kolodziej, Minneapolis**

B.S.Ch.E. with honors '78, Purdue University. Major: Chemical Engineering. Minor: Metallurgy and Materials Science. Thesis: The Effect of Impingement Mixing on the Morphology of Reaction Injected Molded Polyurethane. Major Adviser: Prof. Christopher Macosko.

**Athanasios A. Tsoukas, Akrefnion,**

Greece  
Diploma '77, National Technical University of Athens. Major: Chemical Engineering. Thesis: Multiobjective Analysis and Control of Semi-Batch Copolymerization Reactors. Major Adviser: Prof. George Stephanopoulos.

## Master of Science in Civil Engineering

Michael Martin Christensen, Coon Rapids

B.C.E. with distinction '73, University of Minnesota. Major: Civil Engineering. Major Adviser: Prof. Matthew Huber.

Christine Jeanne Detournay, Liege, Belgium

Dip. Ing. Civ. Geol. with distinction '76, Universite de Liege. Major: Civil Engineering. Thesis: Unconfined Steady Flow of Infiltrated Groundwater Over a Sloping Bed. Major Adviser: Prof. Otto Strack.

Khosro Khakzadi, Tehran, Iran

B.C.E. '77, University of Minnesota. Major: Civil Engineering. Thesis: Development and Evaluation of Real Time Control Algorithms for Critical Intersections. Major Adviser: Prof. Panos Michalopoulos.

Kim Alan Lapakko, St. Louis Park

B.S. '71, Mankato State College. Major: Civil Engineering. Thesis: Kinetics and Mechanisms of the Oxidative Dissolution of Metal Sulfide and Silicate Minerals Present in the Duluth Gabbro. Major Adviser: Prof. Steven Eisenreich.

Saiat Sanbat Massih, Northbrook, Ill.  
Diploma '68, University of Tabriz. Major: Civil Engineering. Major Adviser: Prof. Dimitrios Beskos.

Nels Peter Nelson, Minneapolis

B.C.E. with high distinction '77, University of Minnesota. Major: Civil Engineering. Major Adviser: Prof. Charles Bowers.

Constantine Spyarakos, Athens, Greece

Major: Civil Engineering. Major Adviser: Prof. Dimitrios Beskos.

Eric Crozier Yost

B.S. with distinction '76, Cornell University. Major: Civil Engineering. Thesis: Characterization of Organic Matter and Trace Metals in the Dissolved Fraction of the Upper Mississippi River. Major Adviser: Prof. Michael Hoffmann.

## Master of Science in Dentistry

MAYO GRADUATE SCHOOL OF MEDICINE

Thomas D. Taylor, Iowa City, Iowa

B.S. '70, D.D.S '74, University of Iowa. Major: Dentistry. Thesis: Retention Characteristics of Two Dental Cements Following Cavity Varnish Application. Major Adviser: Prof. W. R. Laney.

## Master of Science in Electrical Engineering

Francis Dennis Bartocci, Byron

B.S. '70, University of Illinois. Major: Electrical Engineering. Major Adviser: Prof. Alfons Tuszynski.

Girard Bernard Borgerding, Freeport

B.E.E. with distinction '73, University of Minnesota. Major: Electrical Engineering. Major Adviser: Prof. William Robbins.

Eugene Yacov Dyatlovitsky, Golden Valley

B.E.E. with distinction '79, University of Minnesota. Major: Electrical Engineering. Thesis: Low-Frequency Noise in Metal-Oxide-Metal Diodes. Major Adviser: Prof. Aldert Van der Ziel.

Donald Francis Fier, Taunton

B.E.E. with distinction '74, University of Minnesota. Major: Electrical Engineering. Thesis: Instruction-Controlled Microprocessor Clock Systems. Major Adviser: Prof. Alfons Tuszynski.

Richard Peyton Halverson, Jr., Minneapolis

B.Comp.Sc. '78, University of Minnesota. Major: Electrical Engineering. Major Adviser: Prof. Larry Kinney.

Michael George Konicek, Rochester

B.E.E. with distinction '78, University of Minnesota. Major: Electrical Engineering. Major Adviser: Prof. Richard Halverson.

Minru Lee, Taiwan

B.S. Eng. '75, National Taiwan University; M.A. '79, State University of New York, Albany. Major: Electrical Engineering. Major Adviser: Prof. Michael Shur.

Paul Michael Lindberg, Blue Earth

B.E.E. '79, University of Minnesota. Major: Electrical Engineering. Thesis: Flicker Noise in Thin Film In Sb Hall Detectors. Major Adviser: Prof. Aldert Van der Ziel.

Khaled Mohammed Slayhi

B.E.E. '71, University of Minnesota. Major: Electrical Engineering. Thesis: Process Computer Control System for Control of Thirty-Two Furnaces. Major Adviser: Prof. E. B. Lee.

James Frederick Sonderegger,  
Minnetonka

B.A. '76, Lawrence University; B.S. '77, Michigan Technological University. Major: Electrical Engineering. Major Adviser: Prof. Mostafa Kaveh.

Andrew Henry Wottreng, Byron

B.S.E.E. summa cum laude '71, Marquette University. Major: Electrical Engineering. Major Adviser: Prof. R. Y. Kain.

Paul Martin Yurista

B.E.E. with distinction '78, University of Minnesota. Major: Electrical Engineering. Minor: Physics. Thesis: Study of Cone Formation on Metal Targets During Ion Bombardment. Major Adviser: Prof. Gottfried Wehner.

### Master of Science in Geo-Engineering

Daniel Edwin Rathke, Rockford, Ill.

B.S. '75, University of Minnesota, Duluth. Major: Geo-Engineering. Minor: Geology. Major Adviser: Prof. Christopher St. John.

### Master of Science in Mechanical Engineering

Thomas Joseph Beckey, Minneapolis

B.A. '71, B.A. '71, B.M.E. '76, University of Minnesota. Major: Mechanical Engineering. Thesis: Pressure Drop Characteristics for a Shrouded Longitudinal-Fin Array With Tip Clearance. Major Adviser: Prof. Ephraim Sparrow.

Min N. Chan, Hong Kong

B.M.E. with distinction '77, University of Minnesota. Major: Mechanical Engineering. Major Adviser: Prof. Virgil Marple.

### Master of Social Work

Beverly Dumas Babbitt, St. Paul

B.S. '73, University of Minnesota. Major: Social Work. Major Adviser: Prof. Helen Yesner.

RuthAnn DeLisi, Minneapolis

B.A. '70, Augustana College. Major: Social Work. Major Adviser: Prof. Beulah Compton.

Dwight Lee Nelson, Monticello

B.A. with scholastic honors '74, St. Cloud State College. Major: Social Work. Major Advisers: Profs. Philip AuClaire and George Hoshino.

Barbara Dougherty Orndorf, St.

Paul

B.A. '66, University of Minnesota. Major: Social Work. Major Adviser: Prof. Esther Wattenberg.

Deanna Rae Saxton, Spokane,

Wash.

B.A. '75, Whitworth College. Major: Social Work. Major Adviser: Prof. Esther Wattenberg.

## Master of Social Work

UNIVERSITY OF MINNESOTA, DULUTH

**Susan Lee Winter Guckenber**  
Major: Social Work. Major Adviser: Prof. Dennis Falk.

**Angela Kim Miller**  
B.S.W. with high distinction '78. Valparaiso University. Major: Social Work. Major Adviser: Prof. Gary Askerooth.

**Ute Roesemann**  
Diplom-Pädagoge '77. Westfälische Wilhelms-Universität Münster. Major: Social Work. Major Adviser: Prof. Rama Pandey.

**Theresa Lee Hewson Stech**  
B.A. '74. University of Minnesota. Major: Social Work. Major Adviser: Prof. Willard Dodge.

**Joyce A. Thornton**  
B.S.D. '76. University of Minnesota, Duluth. Major: Social Work. Major Adviser: Prof. Willard Dodge.

## Specialist Certificate in Education

**Christine Emma Linderman,**  
Marcellus, N.Y.  
B.S. magna cum laude '74. St. Lawrence University. Field: School Psychological Service. Major Adviser: Prof. Byron Egeland.

## Specialist Certificate in Education

UNIVERSITY OF MINNESOTA, DULUTH

**Robert Charles Gerlach**  
B.S. '56. Wisconsin State College. Field: Secondary School Administration. Major Adviser: Prof. John Verrill.

**Gary Lee Lehnhoff**  
B.S. '70. University of Minnesota, Duluth; M.A. '79. University of Minnesota. Field: Secondary School Administration. Major Adviser: Prof. Karl VanderHorck.

## *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
College of Business Administration . . . . .	drab
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
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 fourageres 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.