

**NDSU DEPARTMENT OF COMPUTER SCIENCE
AND OPERATIONS RESEARCH**

ANNUAL REPORT 2001-2002

Primary Contact:
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I. Departmental Profile

During the 2001-02 academic year, the Department of Computer Science and Operations Research carried out two major projects directed at expanding degree program offerings. The resultant new programs are expected to be important in positioning the department for positive growth and change into the future.

The first project is in the electronic commerce area. The project is funded by the U. S. Department of Education Fund for the Improvement of Post-secondary Education (FIPSE) program. An external advisory board and an on-campus steering committee were formed, and a coordinator hired. The project and degree programs are joint efforts with the College of Business Administration. The project funded faculty efforts to develop four new courses in Computer Science, three in Business Administration, and one in Industrial Engineering and Management. A graduate certificate program in the digital enterprise was developed and will be considered for final approval by the State Board of Higher Education in September, 2002. Related to the project, the department has hired Elvin Isgrig, Professor Emeritus of Industrial Engineering and Management, to work quarter-time during the 2002-03 academic year to develop student capstone projects and develop working relationships with external business and industry.

The second project is in the area of Software Engineering. Stimulated by the university-wide initiative to develop new Ph.D. programs, the department named a committee to craft new graduate programs in Software Engineering. With development led by Dr. Ken Magel, three new programs were developed: graduate certificate, Master of Science, and Doctor of Philosophy. All three were approved by the State Board on Higher Education in June, 2002. These programs will be launched in the fall of 2002. Several new courses are being developed and phased in over the next three years to help deliver the programs.

In terms of faculty staffing, Assistant Professor Dr. Victor Shi was reassigned from his joint appointment with the MIS program to full time in computer science in 2001-02. Dr. Karl Altenburg was hired as an Assistant Professor in a full-time teaching appointment. Janet Olfert and Anup Dargar were hired as full-time lecturers. Abul Sheikh, full-time lecturer for several years, has accepted a permanent appointment at a college in Georgia, and Anup Dargar has accepted an Assistant Professor position at Dickinson State University. Recruiting for a replacement lecturer is underway. Dr. Huirong Fu has been hired to begin in the fall of 2003, and will assume responsibility for teaching in computer networks

The department is continuing to develop new courses. Under the ecommerce initiative, Dr. Ken Magel developed a new course in SML. He also developed a course in .net and c#, taught at Microsoft Great Plains and on campus. Dr. Kevin Van Horn developed a new graduate level course in generic programming. Dr. Ahmed Kamel is developing a course on software agents. Dr. Akram Salah developed a new course in software engineering for undergraduates. Dr. Brian Slator developed a new course in synthetic environments. Dr. Huirong Fu is developing a new course in network security to be offered in the fall of 2003.

Departmental productivity in teaching continued to increase in 2001-02, despite the need to limit enrollment in several courses due to staffing limitations. During 1999-00 the department taught 12,798 student credit hours and generated 20.22 FTE. During 2000-01 this increased to 13,728 student credit hours and 22.56 FTE, an increase of 7.27% in student credit hours and 11.57% in

FTE generation. During 2001-02 student credit hours increased to 14,307 and FTE generation increased to 23.04. This is an increase of 4.2% and 2.1% in student credit hours and FTEs respectively over one year, and an increase of 11.8% and 13.9% respectively over the past two years. This growth trend has been consistent and significant for the past six years. To help with staffing for this increased teaching load and to help launch the new programs, the department has been allocated three new faculty positions over the next three years.

The Department continues to offer B.A., B.S., M.S. and Ph.D. degrees in Computer Science. Applications and acceptances into the computer science and software engineering Ph.D. programs for fall 2003 are very high. National Accreditation in Computer Science was first offered by the Computer Science Accreditation Board in 1985. The B.S. in Computer Science earned national accreditation in the first year, and has held this status continuously ever since. The 2002-03 academic year will be a self-study year to prepare for a major accreditation visit in the fall of 2003. Computer Science accreditation is now managed under ABET, the Accreditation Board for Engineering and Technology. A six-year re-accreditation is the maximum possible for the new term.

Two of the tenured faculty concentrate on teaching and service, and the others are active in both teaching and research. The normal teaching load for faculty with a research program is three courses per year (usually two in one semester and one in the other), but two faculty are teaching four courses per year and some occasionally assume overloads in teaching. Most faculty members teach at both the undergraduate and graduate level each year. There are five to six 1-credit seminar courses, each semester, which are not counted in teaching loads. These seminars are specifically in the research areas of the faculty who lead them. Classes required for the computer science degree programs are taught only by faculty with a Ph. D. degree, and are normally held to an enrollment of forty or less, in accordance with accreditation guidelines.

Departmental faculty attract significant external funding for research. In 1998-99 funding for new research projects totaled approximately \$250,000. In 1999-00 this increased to \$644,347. In 2000-01 this increased to \$2,971,060, of which \$1,940,000 is a five-grant acquired by Brian Slator and his research team for work in synthetic environments for teaching. In 2001-02 new project funding totals \$910,569. Active multi-year projects in 2001-02 that were carried over from previous years totaled \$3,589,273. This marks the second year in a row that departmental grant funds in force exceeds \$4,000,000. Major sources of funding include the National Science Foundation, Air Force Office of Scientific Research, Office of Naval Research, U. S. Department of Education, and Microsoft Great Plains Software. Each research faculty member is expected to regularly apply for external funding. Faculty regularly publish in refereed journals and other media. The department continues to benefit from the university being a charter member of Internet2 and from connectivity to the National Science Foundation vBNS network. All faculty have access to the campus ethernet backbone in their offices.

Departmental major areas of research activity include distributed database management systems, educational technology and synthetic environments, image processing, pattern recognition, subsymbolic artificial intelligence, software engineering, quality assurance in networks, and military applications of operations research. There are approximately one-hundred M.S. students, and twenty Ph.D. students. During 2002-03 there will be fewer Master of Science and more Ph.D. students. Each research-oriented faculty member has a laboratory in addition to an office.

Faculty, Lecturer's and Special Appointments Profiles



**Karl Altenburg, Assistant Professor
PhD, North Dakota State University, 1999**

Karl Altenburg teaches Foundations of Computer Science, Self-paced Programming Languages, Systems Analysis and Design, Software Testing and Maintenance, and Introduction to Artificial Intelligence. He conducts research in software agents for emergent intelligence.



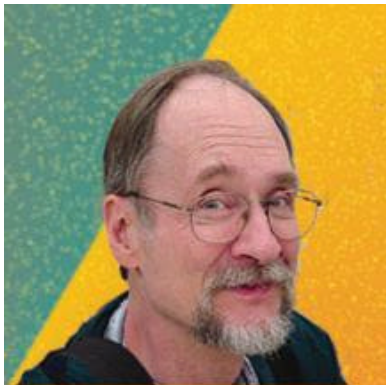
**Dr. D. Bruce Erickson, Associate Professor and
Undergraduate Program Coordinator
PhD, Yale, 1973**

Dr. Erickson teaches courses in programming, data structures and data abstraction, discrete mathematics for computer science, files for database systems, and mathematical foundations of programming. As undergraduate program coordinator, Dr. Erickson serves on the undergraduate curriculum committee, advises on transfer course equivalencies, ensures that national accreditation principles are followed, and makes recommendations on scholarship recipients.



Dr. Ahmed Kamel, Assistant Professor
PhD, Michigan State University, 1994

Dr. Kamel teaches courses in artificial intelligence, programming languages, computer science foundations, and assembly language programming. He also coaches the undergraduate major programming team. He has applied a variety of artificial intelligence techniques to management of grain farming operations. He is currently carrying out research in software agent architectures and mission planning for unmanned air vehicles.



Dr. Paul Juell, Associate Professor
PhD, Ohio State University, 1981

Dr. Juell is interested in Artificial Intelligence and Multimedia for education. He serves as major advisor for large numbers of graduate students. He is working with video conferencing uses in the classroom, including the remote 2000 project for synchronous delivery of courses over the internet.



Dr. Ken Magel, Professor
PhD, Brown University, 1977

Dr. Magel has teaching interests in problem solving, software engineering, computer graphics, and programming languages. His software engineering research activities explore what makes programming difficult and programs complex. He has published widely in the computer science literature. Dr. Magel consults with Great Plains software in C# and .net technologies.



**Dr. John Martin, Associate Professor and
Graduate Program Coordinator
PhD, Rice, 1971**

Dr. Martin teaches the introductory undergraduate computer science sequence, theoretical computer science, algorithm analysis, and computational complexity. His interests are in theoretical computer science, particularly formal languages and automata theory and computational complexity. He has recently completed a third edition of his textbook, Introduction to Languages and the Theory of Computation, which is part of the McGraw-Hill Series in Computer Science. The book is widely adopted for use in universities around the country. In the department, Martin serves as freshman advisor and graduate coordinator.



**Dr. Kendall E. Nygard, Professor and
Departmental Chair
PhD, Virginia Polytechnic Institute and State
University, 1978**

Dr. Nygard teaches courses in simulation, mathematical modeling, network optimization, systems analysis and design, and software testing and maintenance. His research interests include software systems for military mission planning for cooperative control of autonomous aircraft systems, software agents, and geographic information systems (GIS) for school transportation. Primary sponsors of Nygard's research are the Air Force and Navy. He has served as the faculty representative on the State Board of Higher Education and Presiding Officer of the NDSU University Senate.



Dr. William Perrizo, Professor
Ph.D., University of Minnesota, 1972

Dr. Perrizo teaches courses in database systems, simulation, distributed systems, programming, social implications of computers and systems analysis and design. His research interests include database and information systems, data mining, data warehousing, distributed database systems, ATM networks, optical networks, active networking, precision agriculture, and remotely sensed data management and visualization. Perrizo's research has been funded by the National Science Foundation, Air Force, DARPA, IBM, ATT, Great Plains Software, and NASA. He has served on over 50 committees at all levels. Perrizo has served as Interim Dean of Research Administration and Acting Special Assistant to the Vice President for Technology.



Akram Salah, Associate Professor
PhD, University of Alabama at Birmingham 1985

Dr. Salah is primarily interested in software engineering, and is teaching and developing courses in that area. He works summers for Microsoft Great Plains in research and development, and serves as a liaison with that corporation.



Victor Shi, Assistant Professor
PhD, Peking University, 1996

Dr. Shi teaches courses in foundations of computer science, file and database systems, and computer networks. Dr. Shi is a leading researcher in database management systems and computer networks, and is active in patenting new technologies related to his research management



Dr. Brian M. Slator, Associate Professor
Ph.D., New Mexico State University, 1988

Dr. Slator teaches courses in artificial intelligence (AI), multimedia educational systems, computer science problem solving, and comparative languages. His research interests include case-based reasoning in education and performance support, knowledge representation, multimedia systems, distance education, synthetic environments, software agents, and multi-user educational games. Prior to joining NDSU in 1996, he was an AI researcher and project manager at the Institute for the Learning Sciences at Northwestern University. He currently supervises students working in the areas of educational multimedia, synthetic environments, and educational games. At NDSU he is a member of the Worldwide Web Instructional Committee (WWWIC), two working subcommittees of the Information Technology Roundtable (ITR), the Geology Explorer project (in collaboration with the NDSU Geoscience department), and the Polymer Tutor project (in collaboration with the NDSU Polymers and Coatings department). Dr. Slator is a recipient of the Ernest L. Boyer International Award for Excellence in Teaching, Learning and Technology



Dr. Vasant Ubhaya, Professor
Ph.D., University of California, Berkeley, 1971

Vasant Ubhaya teaches courses in Discrete Mathematics, Algorithm Analysis, Performance Evaluation, Mathematical Programming, and Dynamic Programming. He does research in Algorithms, Optimization and Approximation, and publishes his results regularly in journals. He is often invited by professional societies to organize and chair sessions, and give talks at their meetings. His research has been supported by the National Science Foundation and EPSCoR.



Kevin Van Horn, Assistant Professor
PhD, Brigham Young University, 1994

Dr. Van Horn teaches courses in Operating Systems and Foundations of Computer Science. He is developing a new course in generic programming. Dr. Van Horn's research interests are in mathematical and computational methods for speech recognition.

LECTURERS



**Anup Dargar, Lecturer
MS, Moorhead State University, 1998**

Anup Dargar teaches Assembly Language Programming, Computer Organization, and Java programming for MIS majors. He is also working on dissertation research for his Ph.D. degree.



**Ms. Dana Johnson, Senior Lecturer
MS, University of Denver, 1980**

Ms. Johnson teaches introductory courses in application software (Office2000), programming languages (Visual Basic, COBOL), and online courses in electronic commerce.



**Ms. Janet Olfert, Lecturer
MS, Northeast Louisiana University, 1984**

Janet Olfert taught 1 section of CS122, Beginning Visual Basic and 2 sections of 146, Business Use of Computers in Fall 2001. She taught 2 sections of CS125, Cobol Programming, in the Spring 2002 semester.

II. GRANTS, CONTRACTS AND PUBLICATIONS, 2001-02

COMPUTER SCIENCE DEPARTMENT GRANTS AND CONTRACTS, PART 1 PROJECTS INITIATED PRIOR TO JULY 1, 2001, AND CONTINUING THROUGH DECEMBER 31, 2002

YEAR	GRANT #	PRINCIPAL INVESTIGATOR OR	TITLE	FUNDING SOURCE	AMOUNT
5/1/00 – 5/15/01		Kamel	Expert System, Crop Modeling	USDA	30,471
1/1/00 – 5/15/02		Kamel	Knowledge System, Traffic Cntrl.	Trans. Inst.	33,000
1-3-01 to 8-31-02	5078	Magel	Great Plains Software	Great Plains	58,000
4-1-01 to 8-15-02	4276	Nygaard	FIPSE: E-commerce Education Program	US Dept of Education	175,000
4-15-01 to 4-14-04	4795	Nygaard	Cooperative Control of Multiple Unmanned Autonomous Vehicles	US Air Force AFOSR	345,148
4-1-00 to 3-31-03	4585	Nygaard	Agent Architectures for Autonomous Combat Air Vehicles	Office of Naval Research	343,993
4-01 to 4-02	1338	Perrizo	Engberg President Award	NDSU	8,100
6-1-01 to 9-30-03	4966	Perrizo	Virtual Archival Storage Terminal 2001	US General Services Admin.	498,900
7/93 ----	5512	Perrizo	Residual Value Surrogates	Dakota Race Mgmt.	16,469
8-1-00 to 6-30-02	5495	Salah	EPSCoR faculty startup grant	EPSCoR	30,000
5-01 to 5-02	1126	Slator	Towards Construction of a Virtual Archeology Site	Grant in Aid	6,000
4-1-00 to 2-28-03	4782	Slator	New Direction in Virtual Geoscience Educ.	NSF	74,192
00-05		Slator	Systems for Learning Science and Assessing Student Learning;	NSF-ITR	1,940,000
8-1-00 to 6-30-02	5496	VanHorn	EPSCoR faculty startup grant	EPSCoR	30,000
TOTAL					\$3,589,273

**COMPUTER SCIENCE DEPARTMENT GRANTS AND CONTRACTS
PART 2**

PROJECTS INITIATED DURING THE JULY 1, 2001 TO JUNE 30, 2002 TIME PERIOD

YEAR	GRANT #	PRINCIPAL INVESTIGATOR OR	TITLE	FUNDING SOURCE	AMOUNT
5-1-02 to 4-30-05	4871	Nygaard	Near Real-time Mission Planning for Autonomous Vehicles	Naval Research	354,829
5-15-01 to 8-15-01		Salah	Summer Faculty Internship	MGPS	19,500
11/00 – 10/01		Juell	Distance Education Development	NDSU	11,790
3-22-02 to 9-30-04	4251	Perrizo	Virtual Archival Storage Terminal 2002	US General Services Admin.	250,000
11-20-01 to 11-19-06	4205	Nygaard	Virtual Archival Storage Terminal	US Dept. of Housing and Urban Dev.	249,450
9-1-01 to 8-31-03	4576	Kamel	US-Egypt Cooperative Research	NSF	25,000
Totals					\$910,569

FACULTY PUBLICATIONS

Paul Juell

Hoque, Mohmmmand M and Paul Juell, Interactive Visualization of Genetic Algorithm, WebNet World Conference on the WWW and Internet, WebNet 2001, Orlando, Florida, USA, Oct. 23-27, 2001
Association for the Advancement of Computing in Education, 2001.

Ramswamy, Sanjay and Paul Juell, Web Base Online Note Taking System (ONTS), WebNet World Conference on the WWW and Internet, WebNet 2001, Orlando, Florida, USA, Oct. 23-27, 2001
Association for the Advancement of Computing in Education, 2001.

Invited paper and keynote speaker

Juell, Paul, Addressing Education with Rich Symbolic Visualizations, Conference on Advances in Infrastructure for Electronic Business, Science, and Education on the Internet, SSGRR2001, L'Aquila, Italy, Aug 06 - Aug 12 2001,

Slator, Brian M., Jeffrey Clark, Paul Juell, Phil McClean, Bernhardt Saini-Eidukat, Donald P. Schwert, Alan R. White, Research on Role-based Learning Technologies, Proceedings of the First IEEE International Conference on Advanced Learning Technologies (ICALT-01), Madison, WI, Aug. 6-8, 2001, pp. 37-41

Juell, Paul, Extending Symbolic Visualization, ICIMADE'01 International Conference on Intelligent Multimedia and Distance Education, June 1-3 2001, in Fargo North Dakota, in Advances in Educations Technologies: Multimedia, WWW and distance Education, (eds) Mahbubur Rahman Syed and Val Tareski, 2001, pp114-118.

Juell, Paul and Rajat Bhalla, Self Healing Web Pages, ICIMADE'01 International Conference on Intelligent Multimedia and Distance Education, June 1-3 2001, in Fargo North Dakota, in Intelligent Multimedia, Computing and Communications: Technologies and Applications of the Future, (eds) Mahbubur Rahman Syed and Orlando R. Baiocchi, 2001, pp117-121.

Slator, Brian M., Jeffrey Clark, Paul Juell, Phil McClean, Bernhardt Saini-Eidukat, Donald P. Schwert, Alan R. White, Research on Role-based Learning Technologies, Proceedings of the IEEE International Conference on Advanced Learning Technologies, 6-8 in Madison, WI, August 2001.

Borchert, Otto, Aaron Bergstrom, Jill Hockemeyer, Jeffrey Clark, Paul Juell, Phil McClean, Bernhardt Saini-Eidukat, Don Schwert, Brian M. Slator, Alan White, Recent Advances in Immersive Virtual Worlds for Education. Proceedings of the 34th Annual Midwest Instruction and Computing Symposium (MICS), April 5-7, Cedar Falls, IA. 2001.

Ahmed Kamel

Guo, W., K. E. Nygard and A. Kamel (2001). Combinatorial Trading Mechanism for Task Allocation. ISCA 14th International Conference on Computer Applications in Industry and Engineering (CAINE-2001), Las Vegas, Nevada.

Hennebry, M. J., K. E. Nygard and A. Kamel (2002). An Integer Programming Model for Assigning Unmanned Air Vehicles to Tasks. The 2002 American Control Conference (ACC), Anchorage, Alaska.

Rautela, D. (2002). Software Agents as Data and Information Seekers for Knowledge Based Systems. AAAI-2002, Edmonton, Alberta, Canada, American Association of Artificial Intelligence. Submitted.

Smadi, M. and A. Kamel (2002). A Knowledge-Based Traffic Signal Control Application. Innovative Applications of Artificial Intelligence-02, Edmonton, Alberta, Canada, American Association of Artificial Intelligence. Submitted.

Kenneth Magel

Kenneth Magel, "C# Delegates versus C++ Smart Pointers", Journal of Object-Orientation, Volume 14, no. 9 (September, 2001).

John Martin

John C. Martin, *Introduction to Languages and the Theory of Computation*, third edition, McGraw-Hills, 2002

Kendall Nygard

Guo, W., and Kendall E. Nygard, "Combinatorial Trading Mechanism for Task Allocation" Proceedings of the ISCA 14th International Conference on Computer Applications in Industry and Engineering (CAINE-2001), November 27 - 29, 2001, Las Vegas.

Chandler, P. R., Pachter, M., Nygard, K. and Swaroop, D., "Cooperative Control for Target Classification," book chapter in **Advances in Cooperative Control**, Kluwer publishers, 2001

Nygar, K. E., Chandler, P. R., and Pachter, M., Dynamic Network Flow Optimization Model for Air Vehicle Resource Allocation, Proceedings of the 2001 American Control Conference, June 25 - 27, 2001

Hennebry, M. J., K. E. Nygard and A. Kamel, An Integer Programming Model for Assigning Unmanned Air Vehicles to Tasks, accepted, forthcoming in CAINE-2002

William Perrizo

JOURNAL PUBLICATIONS SUBMITTED AND UNDER REVIEW

"CnP - Efficient Overload Protection in Broadband Integrated Services Networks", IEEE/ACM Transactions on Networks, (with V. Shi).

"Performance Evaluation of a Wireless Communication Network with Unreliable Components", IEEE Transactions on Reliability (with V. Shi, W. Chu).

"A Graph-Based Model for Internet Topology", submitted to the Special Issue of Computer Communications on Performance Evaluation of IP Networks and Services.

JOURNAL PUBLICATIONS

"Computing the Blocking Probability in Communication Networks with Multi-priority Traffic", IEEE Transactions on Communications (with V. Shi and W. Chu).

"Measured Average Cell Rate-Based Congestion Avoidance Scheme", International Journal of Communication Systems, Volume 14, Issue 1; 2001 (with Hyun Choi and K. Nygard).

REFEREED PROCEEDINGS PUBLICATIONS

"Artificial Neural Network Applications on Remotely Sensed Imagery", IEEE Conference on Info-tech and Info-net, Beijing, China, Oct. 2001. (with Q. Ding and K. Das).

"Gene Expression Profiling of DNA Microarray Data Using Peano Count Trees (P-Trees)", Proc. of the Virtual Conference on Genomics and Bioinformatics, Fargo, ND, October, 2001. (with P. Kotala, W. Valdivia, A. Perera, J. Zhou, S. Mudivarthy, E. Deckard)

"Preservation and Access of Cultural Heritage Objects Through A Digital Archive Network for Anthropology", 7th International Conference on Virtual Systems and MultiMedia, Berkeley, CA, October 2001. (with J. Clark, B. Slator, A. Bergstrom, F. Larson, R. Frovarp,

J. Landrum).

"On Mining Satellite and Other Remotely Sensed Images", Workshop on Research Issues in Data Mining and Knowledge Discovery (DMKD 01), Santa Barbara, CA, May, 2001. (with Qin Ding, Qiang Ding and Amalendu Roy).

"Deriving High Confidence Rules for Spatial Data Using Peano Count Trees", International Conference on Web-Age Information Management Conference (WAIM-2001), July, 2001, Xian China (with Qin Ding, Qiang Ding and Amalendu Roy).

"A Dual Copy Method for Transaction Separation with Multiversion Control for Read-only Transactions", ACM Symposium on Applied Computing, March, 2001, Las Vegas, NV (with B. Lu and Q. Zou).

Akram Salah

"Decision Table Modeling for Agent-Based Software Engineering," 31st International Conference on Statistics, Computer Science, and Operations Research, Cairo, Egypt, December 2001.

"Engineering an Academic Program in Software Engineering," Midwest Instruction Computing Symposium MICS2002, Cider Falls, IOWA, April 2002.

Victor Shi

"A New Method for Concurrency Control in Centralized Database Systems", ISCA CATA-2002

"Admission Control Schemes for Real-time Streams on the Internet", IASTED, IMSA -2002.

"A Place-Based Model for Internet Topology", ICIC-2002.

"Algorithms for Modeling the Internet Topologies", IASTED, ASM-2002.

"Computer the blocking probabilities in communications networks with priority traffic", IEEE transactions on Communications.

"Access control schemes and performance of a link with heterogeneous traffic", IEEE transactions on Communications.

"CnP – Efficient Overload Protection in Broadband Integrated Services Networks", IEEE/ACM transactions on networking

Brian Slator

Bernhardt Saini-Eidukat, Donald P. Schwert, and Brian M. Slator. (in press). Geology Explorer: Virtual Geologic Mapping and Interpretation. Journal of Computers and Geosciences. 27(4).

Clark, Jeffrey T., Brian M. Slator, Aaron Bergstrom, Francis Larson, Richard Frovarp, James E. Landrum III,

William Perrizo, William Jockheck. (2002). DANA (Digital Archive Network for Anthropology) A Model for Digital Archiving. Proceedings of the 17th ACM Symposium on Applied Computing (SAC 2002), Special Track on Database and Digital Library Technology. Madrid, Spain, March 10-14.

Slator, Brian M., Jeffrey T. Clark, James Landrum III, Aaron Bergstrom, Justin Hawley, Eunice Johnston, and Shawn Fisher. (2001). Teaching with Immersive Virtual Archaeology. Proceedings of the 7th International Conference on Virtual Systems and Multimedia (VSMM-2001). Berkeley, CA, Oct. 25-27, pp. 253-262.

Clark, Jeffrey T., Brian M. Slator, Aaron Bergstrom, Francis Larson, Richard Frovarp, James E. Landrum III, William Perrizo. (2001). Preservation and Access of Cultural Heritage Objects Through a Digital Archive Network for Anthropology. Proceedings of the 7th International Conference on Virtual Systems and Multimedia (VSMM-2001). Berkeley, CA, Oct. 25-27, pp. 28-38.

Slator, Brian M. (2001). Immersive Role-Based Environments for Education. Invited Speaker. Proceedings of the WebNet World Conference on the WWW and Internet (WebNet 2001), Orlando, FL, Oct. 23-27, pp. 1132-1138.

Slator, Brian M. with the members of CsCI345 (2001). Rushing Headlong into the Past: the Blackwood Simulation. Proceedings of the Fifth IASTED International Conference on Internet and Multimedia Systems and Applications (IMSA 2001). Honolulu, HI, August 13-16, pp. 318-323. Complete author list at <http://lions.cs.ndsu.nodak.edu/~mooadmin/papers/imsa-final.htm>

Slator, Brian M., Jeffrey Clark, Paul Juell, Phil McClean, Bernhardt Saini-Eidukat, Donald P. Schwert, Alan R. White (2001). Research on Role-based Learning Technologies. Proceedings of the First IEEE International Conference on Advanced Learning Technologies (ICALT-01). Madison, WI, Aug. 6-8. pp. 37-41

Slator, Brian M., Jeffrey Clark, Paul Juell, Phil McClean, Bernhardt Saini-Eidukat, Donald P. Schwert, Alan R. White, John Bauer, Francis Larson, Bradley Vender, Aaron Bergstrom, Otto Borchert, Robert Cosmano, Justin Hawley, Christina Johnson, John Opgrande, Rebecca Potter, Paul Rye, Lester Sjoblom, Shannon Tomac, and the NDSU Worldwide Web Instructional Committee (2001). Demonstrations of Virtual Worlds for Education Research at NDSU. Proceedings of the International Conference on Intelligent Multimedia and Distance Education (ICIMADE-01). Fargo, ND, June 1-3. pp. 148-154

Borchert, Otto, Aaron Bergstrom, Jill Hockemeyer, Jeffrey Clark, Paul Juell, Phil McClean, Bernhardt Saini-Eidukat, Donald P Schwert, Brian M Slator, Alan R White, Curt Hill, John Bauer, Francis Larson, Brad Vender, Bryan Bandli, Bing Chen, Michelle Dean, Richard Frovarp, Guy Hokanson, Christina Johnson, Jeff Kittleson, Ned Kruger, James Landrum, Mei Li, Benjamin Nichols, John Opgrande, Rebecca Potter, Patrick Regan, Lai Ong Teo, Anurag Tokhi, Shannon Tomac, Joy Turnbull, Jane Willenbring, Qiang Xioo, Xinhai Ye, Melissa Zuroff. (2001), Recent Advances in Immersive Virtual Worlds For Education. Proceedings of the 34th Annual Midwest Instruction and Computing Symposium (MICS-01), Cedar Falls, IA. April 5-7. [CD-ROM: /PAPERS/ BORCHERT.PDF]

Slator, Brian M., Bernhardt Saini-Eidukat, Donald P. Schwert, (2001) Mining for Problem-solving Styles in a Virtual World. Proceedings of the 12th International Conference of the Society for Information Technology and Teacher Education (SITE'01), Orlando, FL, March 4-10, pp. 2536-2540.

McClean, Phillip, Bernie Saini-Eidukat, Donald Schwert, Brian Slator, Alan White (2001). Virtual Worlds in Large Enrollment Biology and Geology Classes Significantly Improve Authentic Learning. In Selected Papers from the 12th International Conference on College Teaching and Learning (ICCTL-01), Jack A. Chambers, Editor). Jacksonville, FL: Center for the Advancement of Teaching and Learning. April 17-21, pp. 111-118.

Clark, J. T., A. Bergstrom, J. Landrum, III, F. Larson, and B. Slator. (2001). Digital Archiving Network, for Anthropology. In Proceedings of the Virtual Archaeology Between Scientific Research and Territorial Marketing Conference, Arezzo, Italy, November 2000. Edited by F. Niccolucci. Oxford: BAR International Series.

Slator, Brian M., Jeffrey T. Clark, Lisa M. Daniels, Curt Hill, Phil McClean, Bernhardt Saini-Eidukat, Donald P. Schwert, Alan R. White (submitted). Use of Virtual Worlds to Teach the Sciences. In Internet Based Teaching and Learning (Editors: R.J.Howlett and L.C.Jain). Springer-Verlag: Heidelberg, Germany.

Vasant Ubhaya

Fitting a Least Squares Piecewise Linear Continuous Curve in Two Dimensions (with S. Kundu), Computers and Mathematics with Applications, An International Journal, Vol. 41, pp. 1033-1041, 2001.

Isotone Functions, Dual Cones and Networks, Applied Mathematics Letters, Vol. 14, pp. 463-467, 2001.

Best Approximation by Bounded or Continuous Functions, Encyclopedia of Optimization, Kluwer Academic Publishers, Vol. I, pp. 127-131, 2001.

Regression by Special Functions, Encyclopedia of Optimization, Kluwer Academic Publishers, Vol. V, pp. 12-16, 2001.

III. ENROLLMENT AND FTE DATA

Student Credit Hours and FTEs Generated

	1997-1998		1998-1999		1999-2000		2000-2001		2001-2002	
	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE	Credit hours	FTE
100-200	9038	11.3	9191	11.46	9176	11.47	8915	11.14	9097	11.37
300-400	2009	3.69	2295	4.22	2343	4.31	3243	5.96	3504	6.44
600-700	1263	4.39	1127	3.91	1279	4.44	1570	5.45	1506	5.23
TOTAL	12310	19.38	12613	19.62	12798	20.22	13728	22.56	14307	23.04

SUMMER II SCHEDULE 2001

COURSE HOURS	CLASS TITLE	INSTRUCTOR	STUDENT CREDIT ENROLL	
122	Programming in Basic	D. Johnson	10	3
146	Business Use of Computers	A. Sheikh	29	3
147	Microcomputer Packages	Dana Johnson	15	3
227	Computing Fund. I	A. Sheikh	14	3
228	Computing Fund. II	A. Sheikh	10	3

315	System Analysis & Design	K. Magel	17	3
372	Comparative Languages	B. Sktor	83	3
373	Assembly Program	A. Kamel	21	3
459	Local Area Networks	K. Magel	18	3
659	Local Area Networks	K. Magel	29	3
708	Foundations of Programming	B. Erickson	6	3
790	Sem/Artificial Intelligence in Design & Planning	A. Kamel	8	1
793	ST/Data Provisioning Among Software Agents	K. Nygard	1	1
793	ST/Data Mining System	W. Perrizo	1	1
797	Master Paper	Staff	7	R-3
798	Master Thesis	Staff	11	R-10
799	Doctoral Dissertation	Staff	3	R-15

**FALL SEMESTER SCHEDULE
2001**

COURSE HOURS	CLASS TITLE	INSTRUCTOR	STUDENT ENROLL	CREDIT
122	Program in BASIC	J. Moses	45	3
122	Program in BASIC	J. Olfert	51	3
146	Business Use of Computers	J. Olfert	59	3
146	Business Use of Computers	J. Olfert	61	3
146	Business Use of Computers	V. Shanmugasundaram	57	3
146	Business Use of Computers	N. Rahman	57	3
146	Business Use of Computers	A. Sheikh	62	3
146	Business Use of Computers	A. Sheikh	61	3
146	Business Use of Computers	S. Huq	53	3
147	Microcomputer Packages	H. Qiao	58	3
147	Microcomputer Packages	S. Anugonda	62	3
147	Microcomputer Packages	V. Tatta	58	3
147	Microcomputer Packages	N. Rahman	59	3
147	Microcomputer Packages	S. Desaraju	58	3
147	Microcomputer Packages	D. Johnson	59	3
147	Microcomputer Packages	D. Johnson	59	3
155	Immigration (JAVA)	B. Erickson	5	3
159	CS Problem Solving	B. Slator	45	3
160	Computer Science I	A. Denton	39	4
160	Computer Science I	B. Erickson	41	4
160	Computer Science I	J. Martin	43	4
160	Computer Science I	J. Martin	40	4
161	Computer Science II	V. Shi	27	4
161	Computer Science II	K. Altenburg	21	4
214	Self-Paced C	K. Altenburg	21	1
222	Discrete Mathematics	B. Erickson	39	3
222	Discrete Mathematics	V. Ubhaya	36	3

227	Computing Fund. I	A. Dargar	32	3
227	Computing Fund. I	A. Dargar	37	3
227	Computing Fund. I	A. Dargar	36	3
235	Theoretical CS I	J. Martin	66	3
315	System Anal & Design	K. Altenburg	39	3
315	System Anal & Design	A. Salah	39	3
315	System Anal & Design	K. Altenburg	28	3
345	Spec. Topic/Princ. Of Software Engr.	A. Salah	22	3
366	Files/Database System	V. Shi	45	3
372	Comparative Languages	P. Juell	31	3
372	Comparative Languages	P. Juell	19	3
373	Assembly Programming	C. Young	41	3
373	Assembly Programming	C. Young	22	3
453	Linear Program Network	V. Ubhaya	12	3
474	Operating Systems Conc.	A. Kamel	42	3
474	Operating Systems Conc.	K. VanHorn	36	3
477	Objected Oriented System	K. Magel	7	3
494	Ind. Study/VR Development	B. Slator	1	3
494	Ind. Study/ Foundations of Digital Enter.	D. Johnson	22	3
653	Linear Program Network	V. Ubhaya	3	3
677	Objected Oriented System	K. Magel	9	3
708	Foundations of Programming	B. Erickson	30	3
713	Software Engineering I	K. Magel	49	3
735	Neural Networks	A. Kamel	14	3
765	Intro to Database Systems	Bill Perrizo	44	3
783	ST/Data Mining	B. Perrizo	4	3
783	ST/Foundation of Digital Enter	K. Nygard	3	3
790	Sem/Artificial Intelligence	Paul Juell	2	1
790	Sem/ATM	Bill Perrizo	8	1
790	Sem/Database Systems	Bill Perrizo	10	1
790	Sem/ XML	Ken Magel	2	1
790	Sem/Intelligent Agents	A. Kamel	5	1
793	IS/Research Management Agent	K. Nygard	1	3
797	Master Paper	Staff	37	R-3
798	Master Thesis	Staff	27	R-10
799	Doctoral Dissertation	Staff	5	R-15

***SPRING SEMESTER SCHEDULE
2002***

COURSE HOURS	CLASS TITLE	INSTRUCTOR	STUDENT ENROLL	CREDIT
122	Program in BASIC	J. Moses	37	3
122	Program in BASIC	J. Olfert	39	3
125	COBOL Programming	J. Olfert	43	3

125	COBOL Programming	J. Olfert	40	3
145	Intro to Computing	D. Johnson	7	2
146	Business Use of Computers	M. Viswanathan	62	3
146	Business Use of Computers	R. Chandel	61	3
146	Business Use of Computers	Y. Fan	61	3
146	Business Use of Computers	V. Shanmugasundaram	59	3
146	Business Use of Computers	J. Tang	59	3
146	Business Use of Computers	A. Sheikh	60	3
146	Business Use of Computers	A. Sheikh	59	3
147	Microcomputer Packages	S. Desariju	59	3
147	Microcomputer Package	H. Qiao	59	3
147	Microcomputer Packages	S. Anugonda	61	3
147	Microcomputer Packages	V. Tatta	60	3
147	Microcomputer Packages	T. Loomba	46	3
147	Microcomputer Packages	D. Johnson	61	3
147	Microcomputer Packages	D. Johnson	50	3
159	Computer Sc. Problem Solving	K. Grigsby	35	3
160	Computer Science I	A. Denton	42	4
160	Computer Science I	V. Shi	39	4
161	Computer Science II	B. Erickson	39	4
161	Computer Science II	K. VanHorn	15	4
161	Computer Science II	K. VanHorn	12	4
161	Computer Science II	B. Erickson	22	4
172	Intermediate VBASIC	D. Johnson	19	3
212	Self-Paced C++	K. Altenburg	26	1
228	Computer Fundamentals	A. Dargar	42	3
228	Computer Fundamentals	A. Dargar	33	3
236	Theoretical CS II	J. Martin	49	3
316	System Testing & Maint	K. Altenburg	56	3
316	System Testing & Maint	K. Altenburg	29	3
345	Topics in Personal Computers	Brian Slator	75	3
372	Comparative Languages	P. Juell	35	3
372	Comparative Languages	P. Juell	38	3
374	Computer Organization	A. Dargar	41	3
374	Computer Organization	A. Dargar	28	3
418	Simulation Models	K. Nygard	20	3
426	Intro/Artificial Intelligence	K. Altenburg	43	3
459	Local Area Networks	K. Magel	31	3
467	Algorithm Analysis	J. Martin	41	3
468	Database Systems Design	A. Salah	23	3
475	Operating Systems Design	A. Kamel	28	3
489	Soc. Implications of Computer	K. Magel	115	3
494	ST/Found. Of Digital Enterprise	D. Johnson	15	3
618	Simulation Models	K. Nygard	9	3
626	Intro/Artificial Intelligence	K. Altenburg	0	3
659	Local Area Networks	K. Magel	15	3

667	Algorithm Analysis	J. Martin	1	3
668	Database Systems Design	A. Salah	18	3
689	Social Implications of Comp.	K. Nygard	3	3
724	Survey of AI	P. Juell	34	3
741	Algorithm Analysis	V. Ubhaya	12	3
762	Network flows	V. Ubhaya	3	3
766	Database System Internals	W. Perrizo	14	3
783	ST/Virtual Environments	B. Slator	7	3
783	ST/Found. Of Digital Enterprise	K. Nygard	14	3
785	Data Mining	W. Perrizo	28	3
790	Sem/Artificial Intelligence	P. Juell	3	1
790	Sem/ATM	W. Perrizo	6	1
790	Sem/Database Systems	W. Perrizo	8	1
790	Sem/Educational Media	B. Slator	0	1
790	Sem/Formal Methods in Software Engr.	A. Salah	2	1
790	Sem/Intelligent Agents	A. Kamel	3	1
790	Sem/Generic Programming	K. VanHorn	3	1
790	Sem/XML	K. Magel	1	1
793	IS/Multi Agent Architecture	K.Nygard	2	R-5
793	IS/Artificial Intelligence in Trans	A. Kamel	1	2
797	Master Paper	Staff	30	R-3
798	Master Thesis	Staff	24	R-10
799	Doctoral Dissertation	Staff	9	R-15

**SUMMER I SCHEDULE
2002**

COURSE HOURS	CLASS TITLE	INSTRUCTOR	STUDENT ENROLL	CREDIT
122	Programming in Basic	J. Olfert	9	2
146	Business Use of Computers	A. Sheikh	29	3
147	Microcomputer Packages	D. Johnson	20	3
160	Computer Science I	B. Erickson	12	4
161	Computer Science II	B. Erickson	15	4
227	Computing Fund. I	A. Sheikh	6	3
235	Theoretical Computer Sci. I	J. Martin	15	3
315	Systems Analysis & Design	K. Altenburg	18	3
372	Comparative Languages	B. Slator	57	3
373	Assembly Programming	A. Kamel	16	3
499	Introduction to .NET	K. Magel	10	3
696	Introduction to .NET	K. Magel	19	3
708	Foundations of Programming	B. Erickson	11	3
760	Dynamic Programming	V. Ubhaya	12	3
790	Sem/Software Agents	A. Kamel	3	1

797	Master Paper	Staff	5	R-3
798	Master Thesis	Staff	4	R-10
799	Doctoral Dissertation	Staff	6	R-15

STUDENT RATING OF INSTRUCTION RESULTS 2001-2002

FALL, 2001 and SPRING 2002

Questions	VG	G	IB	P	VP	OMI T	DEPARTMENT LEVEL		
							Mean	S.D.	#R
100 TO 200 LEVEL									
1. Your satisfaction with the instruction in this course.	19.6	45.5	23.0	8.5	3.2	0.1	3.722	1.048	2132
2. The instructor as a teacher.	22.4	42.5	24.1	7.2	3.6	0.2	3.789	1.062	2131
3. The ability of the instructor to communicate effectively	15.6	33.5	32.5	13.4	4.6	0.4	3.602	1.124	2132
4. The quality of this course	16.6	47.2	25.8	7.3	2.4	0.7	3.652	1.001	2128
5. The fairness of procedures for grading this course.	33.4	47.2	13.1	4.3	1.8	0.3	4.079	0.907	2127
6. Your understanding of the course content.	19.8	48.6	23.7	9.1	2.5	0.3	3.797	0.939	2129
300 TO 400 LEVEL									
1. Your satisfaction with the instruction in this course.	16.2	34.0	21.7	14.2	13.2	0.8	3.722	1.048	2132
2. The instructor as a teacher.	20.6	34.6	19.4	12.0	12.6	0.8	3.789	1.062	2131
3. The ability of the instructor to communicate effectively	19.4	31.1	21.1	11.2	16.6	0.6	3.602	1.124	2132
4. The quality of this course	13.1	32.8	28.2	15.5	9.4	1.1	3.652	1.001	2128
5. The fairness of procedures for grading this course.	22.8	37.5	22.9	8.5	7.5	0.8	4.079	0.907	2127
6. Your understanding of the course content.	13.4	40.0	30.3	10.6	4.9	0.8	3.797	0.939	2129
600 TO 700 LEVEL									
1. Your satisfaction with the instruction in this course.	49.4	41.5	5.8	1.2	0.8	1.2	3.722	1.048	2132
2. The instructor as a teacher.	60.6	34.4	2.1	0.8	0.8	1.2	3.789	1.062	2131
3. The ability of the instructor to communicate effectively	58.1	34.4	9.8	0.4	0.4	0.8	3.602	1.124	2132
4. The quality of this course	44.0	39.4	13.3	1.7	0.4	1.2	3.652	1.001	2128
5. The fairness of procedures for grading this course.	53.1	37.3	5.4	2.1	0.4	1.7	4.079	0.907	2127
6. Your understanding of the course content.	41.9	41.5	13.3	0.8	0.4	2.1	3.797	0.939	2129

UNDERGRADUATE ADVISEES 2001-2002

D. Bruce Erickson

Asher, Joshua	Sophomore
Bitzegaio, Mathew	Sophomore
Maus, Brock	Sophomore
Asker, Brian	Junior
Baird, Wade	Junior
Bladow, Garrett	Junior
Bollinger, Nathan	Junior
Cai, Sufeng	Junior
Campbell, Blaine	Junior
McGinnity, Steve	Junior
Adams, Christine	Senior
Cosmano, Robert	Senior
Erickson, Kellie	Senior
Franchuk, Ryan	Senior
Hagen, Christopher	Senior
Kidd, Matthew	Senior
Kornkven, Mark	Senior
Lyons, Kari	Senior
Phan, Thiep	Senior
Sitz, Jeffrey	Senior
Wittmer, Matthew	Senior

Paul Juell

Kitzman, Jon	Sophomore
Kuchar, Michael	Sophomore
*Anderson, John	Senior
*Clemenson, Justin	Senior
*Gienger, Paul	Senior
*Hanson, Brent	Senior
*Kubat, Brent	Senior
Mauch, Eric	Senior
Moorhouse, Scott	Senior
Mormon, Jeffrey	Senior
Muchow, Dale	Senior

Ahmed Kamel

Helseth, Ryan	Junior
Isley, John	Junior
Johnson, Curt	Junior
Jyoti, Sanjay	Junior
Midas, Chevy	Junior
Hazen, Craig	Senior
Houge, Mark	Senior
Huff, Nathan	Senior
Jian, Sanchita	Senior
Larson, Nicole	Senior
Laternus, Lisa	Senior

Kenneth Magel

Schobinger, Robert	Sophomore
Duncan, Joseph	Senior
Nichols, Christopher	Senior
Pikalek, Jonathan	Senior
*Romberg, Carissa	Senior

John Martin

Albers, Jonathan	Freshman
Anderson, Bridger	Freshman
Anstadt, Jacob	Freshman
Bennett, Matthew	Freshman
Bhalla, Pooja	Freshman
Bjorneberg, Ben	Freshman
Blaufuss, Jeffrey	Freshman
Boer, Jason	Freshman
Boll, David	Freshman
Butman, Jeffrey	Freshman
Cimbura, Nathaniel	Freshman
Conklin, Timothy	Freshman
Cooke, Edwin	Freshman
Davis, Matthew	Freshman
Dudrey, Gabriel	Freshman
Duncan, Lee	Freshman
Duval, Christian	Freshman
Frueh, Kara	Freshman
Fudge, Adam	Freshman
Furman, Austin	Freshman
Gibb, George	Freshman
Gott, Forrest	Freshman
Graff, Erika	Freshman

Griggs, Ryan	Freshman
Grindberg, Vylad	Freshman
Hamre, Daniel	Freshman
Hanson, Douglas	Freshman
Haugen, Nicholas	Freshman
Heilman, Ryan	Freshman
Helm, Dustin	Freshman
Holm, Steven	Freshman
Holzworth, Denver	Freshman
Hughes, Eric	Freshman
Huseby, Nathan	Freshman
Ihry, Jay	Freshman
Imdieke, Christopher	Freshman
Jarnier, Emeric	Freshman
Johnson, Kayla	Freshman
Karg, James	Freshman
Keller, Mitchel	Freshman
Kolb, Daniel	Freshman
Kraemer, Brian	Freshman
Kramer, Ross	Freshman
Kroshus, Nicholas	Freshman
Laplaca, Ryan	Freshman
Masset, Dustin	Freshman
Masset, Ryan	Freshman
McNeese, Michael	Freshman
Messer, Erika	Freshman
Miller, Jon	Freshman
Miller, Lucas	Freshman
Moen, Ryan	Freshman
Mondal, Imtiaz	Freshman
Muggli, Mark	Freshman
Nakamura, Kiyochika	Freshman
Nanik, Justin	Freshman
Neill, David	Freshman
Nelson, Hanni	Freshman
Nelson, Sean	Freshman
Nordick, Michael	Freshman
Olson, Aaron	Freshman
Pallansch, Matthew	Freshman
Parsons, Robert	Freshman
Pattison, Brian	Freshman
Pedersen, Derek	Freshman
Pelton, Nicholas	Freshman
Perkins, Chad	Freshman
Phan, Think	Freshman
Plante, Douglas	Freshman
Price, Michael	Freshman
Raile, Thomas	Freshman
Reha, Christopher	Freshman
Rubey, Kathryn	Freshman
Sanasac, Adam	Freshman

Small, Daniel	Freshman
Smith, Brian	Freshman
Sund, Josh	Freshman
Thomas, Jeremy	Freshman
Torgerson, Dustin	Freshman
Torkelson, Eric	Freshman
Trangsrud, Matthew	Freshman
Vorachek, Scott	Freshman
Wacker, Brian	Freshman
Waltner, Travis	Freshman
Warman, Jeffrey	Freshman
Weisz, Shawn	Freshman
Wiest, Charles	Freshman
Wilson, Erin	Freshman
Wurtz, Christopher	Freshman

Allar, Jared	Sophomore
Anderson, Eric	Sophomore
Baldwin, Adam	Sophomore
Baptist, Bret	Sophomore
Buchanan, Paul	Sophomore
Christiansen, Brett	Sophomore
Cook, Matthew	Sophomore
Davidson, Luke	Sophomore
Dischinger, Benjamin	Sophomore
Duval, Christian	Sophomore
Elseth, Jacob	Sophomore
Engberg, Cole	Sophomore
Erhardt, Eric	Sophomore
Fleming, Taylor	Sophomore
Fogel, James	Sophomore
Franz, Gary	Sophomore
Gale, Athanasio	Sophomore
Grueneich, Justin	Sophomore
Gunderson, Phillip	Sophomore
Gusoette, Steven	Sophomore
Hamilton, Brenda	Sophomore
Hammond, Michael	Sophomore
Herring, Jacalyn	Sophomore
Hetzler, Christopher	Sophomore
Hirning, Robert	Sophomore
Jacobs, Benjamin	Sophomore
Jelinke, Jason	Sophomore
Johnson, Bryan	Sophomore
Kadmas, Jason	Sophomore
Keller, Mitchel	Sophomore
Kiefat, Matthew	Sophomore
Kittelton, Dustin	Sophomore
Kohanowski, Shaun	Sophomore
Kranitz, Ryan	Sophomore
Kroh, Travis	Sophomore

Kurtti, David	Sophomore
McKibbon, Blair	Sophomore
Meagher, Andrew	Sophomore
Meidinger, Barbara	Sophomore
Momerak, Chad	Sophomore
Myers, Robert	Sophomore
Nguyen, Tilly	Sophomore
Ostby, Brandon	Sophomore
Rausch, Andrew	Sophomore
Rupprecht, Jared	Sophomore
Salah, Ibrahim	Sophomore
Santiago, Bosco	Sophomore
Schulte, Hayden	Sophomore
Scott, Kerry	Sophomore
Serati, Anthony	Sophomore
Shannon, Brocks	Sophomore
Spiritstone, Christopher	Sophomore
Thompson, Eric	Sophomore
Torborg, Chad	Sophomore
Vana, Stephen	Sophomore
Verret, Riley	Sophomore
Vetter, Denise	Sophomore
Volesky, Holly	Sophomore
Wang, Derek	Sophomore
Win, U	Sophomore
Win, Qipeng	Sophomore

Almquist, Burke	Junior
Aus, Jason	Junior
Ballinger, Heidi	Junior
Berseth, Matt	Junior
Borgen, Steven	Junior
Burleigh, David	Junior
Delarosa, Benjamin	Junior
Elhassani, Abdelillah	Junior
Erickson, Peter	Junior
Feist, Matthew	Junior
Froseth, Nathan	Junior
Harambe, Clement	Junior
Heem, Andrew	Junior
Hoyt, Cory	Junior
Jaskowiak, Joseph	Junior
Kulka, Isaac	Junior
Likness, Jeremy	Junior
Lindvall, Nickolas	Junior
Maier, Nathan	Junior
McDonough, Shaun	Junior
Meartz, Katherine	Junior
Melling, Paul	Junior
Mitchell, Chad	Junior

Nguyen, Nguyen	Junior
Ohlsen, Tyler	Junior
Pagels, Lisa	Junior
Robideau, Michael	Junior
Schmidt, Jeffrey	Junior
Schubert, Seth	Junior
Sellers, Eric	Junior
Serani, Matthew	Junior
Taylor, Melissa	Junior
Thomson, Drew	Junior
Zechman, Nicholas	Junior

Albright, Erik	Senior
Alinder, Sarah	Senior
Asche, Lucas	Senior
Baker, Kathy	Senior
Bergstrom, Clinton	Senior
Bradley, Troy	Senior
Carroll, Christopher	Senior
Chizek, Brian	Senior
Christensen, Jodi	Senior
Cusey, John	Senior
Dick, Craig	Senior
Fasteen, Neil	Senior
Fimreite, Keith	Senior
Forde, Chad	Senior
Hendrickson, Lance	Senior
Huschka, David	Senior
Isley, Michael	Senior
Johnson, Bryce	Senior
Jordet, Ryan	Senior
Kawamura, Satoshi	Senior
Kercher, Kreg	Senior
Kikuchi, Masayuki	Senior
Kuck, David	Senior
Lake, Aaron	Senior
Lee, Michael	Senior
Levasseur, Jesse	Senior
Lill, John	Senior
Nelson, Daniel	Senior
Nguyen, Tung	Senior
Ochs, Benjamin	Senior
Pearson, Patrick	Senior
Perala, Jason	Senior
Peterson, Jonathan	Senior
Pillatzki, Ryan	Senior
Poitra, Angel	Senior
Prochniak, Amy	Senior
Randleman, Eric	Senior
Schlecht, Joseph	Senior
Serhienko, David	Senior

Tomhave, Monika	Senior
Wampler, Danel	Senior
Whitlock, Joshua	Senior
Wyman, Brandon	Senior

Kendall Nygard

Friesen, Eric	Sophomore
Puppe, Jay	Sophomore
Voecks, David	Sophomore

Erickson, Matthew	Junior
Vette, Bradley	Junior
Weyrauch, Douglas	Junior

Anderson, Brendon	Senior
Anderson, Ryan	Senior
Beimdiek, Heath	Senior
Dixon, John	Senior
Eddy, Chad	Senior
Koehntop, Lucas	Senior
Olson, Derrick	Senior
Pappa, Chris	Senior
Phan, Xuyen	Senior
Rytter, Russell	Senior
Slag, Troy	Senior
Volesky, Shawn	Senior

William Perrizo

*Hawkinson, Wayne	Senior
Peterson, Kenneth	Senior

Akram Salah

None

Victor Shi

Folmer, Todd	Senior
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Brian Slator

Reimer, Jason	Sophomore
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Johnson, Jacob	Junior
Nguyen, Ha Son	Junior

Nichols, Benjamin	Junior
Nseumen, Pat	Junior
Scherer, Matthew	Junior
Anderson, Jeffrey	Senior
Borchert, Otto	Senior
Crussel, David	Senior
Frovarp, Richard	Senior
Heiraas, Lana	Senior
Odland, Kristoffer	Senior
Pool, Maxfield	Senior
Samek, Joe	Senior
Sawdey, Eric	Senior
Scherman, Jason	Senior

Vasant Ubhaya

Hauger, Matthew	Sophomore
Rahman, Sharif	Sophomore
Skallerud, Sean	Sophomore

Schmidt, Amanda	Junior
Simmer, Thomas	Junior
Stern, Kyle	Junior
Susag, Alex	Junior

Davis, Jesse	Senior
Fliger, David	Senior
Haan, Nicholas	Senior
Lindvall, Benjamin	Senior
Mafua, Daniel	Senior
Markwardt, Joseph	Senior
Murphy, John	Senior
Rider, Jeremy	Senior
Schlueter, Nicholas	Senior
Schultz, Peter	Senior
Sell, Robert	Senior
Simmons, Kent	Senior
Traun, Douglas	Senior
Tuttle, Kyle	Senior

Kevin Van Horn

None

***Denotes MIS major**

Masters Students:

Ahmed, Md
Ahmed, Syed
Akter, Khandker Shahin
Anugonda, Sreelatha
Anwar, Mohd
Ayyarsamy, Arunprakash
Bhatia, Jasmeet
Cai, Xiaotao
Chen, Lie
Christensen, Gordon
Denton, Anne
Desaraju, Surya
Devabhaktuni, Sarita
Ding, Qiang
Dutta, Tridib
Fan, Yousheng
Farheen, Swara
Farooq, Mohammad
Ferdinando, Rohini
Forhad, Tofayel
Guo, Wenge
Habib, MD
Haider, Chowdhury Omar
Haque, Mohammad Shahidul
Helaly, Tanjina
Hennebry, Michael
Hoque, Mohammad Mazharul
Hossain, Mohammad
Kancherla, Sridhar
Khalique, Abu Saleh
Khan, Md Abdul
Kotala, Pratap
Krule, Terry
Kunala, Santosh
Li, Mei
Li, Yuhuan
Loomba, Tavishi
Lu, Baojing
Majeed, Atif
Maram, Suresh
Marla, Soma
Mistry, Dilip Kumar
Momen, Ahmed
Mugu, Vamshi
Mukherjee, Rakhi
Nadig, Rohitaswa
Nandula, Aparna
Nanna, Tania
Nisheeth, Neerav
Njos, Robby
Opgrande, John
Pasupuleti, Satyanarayana
Patel, Dharmesh
Peng, Ge
Peravali, Kishore
Perera, Amal
Pitchairaman, Murugan
Qiao, Haiyan
Rahman, Md Najeebur
Rahman, Md Rezaur
Rahman, Syed
Ramaswamy, Sanjay
Rautela, Deepak
Ray, Sisir
Regan, Patrick
Roy, Amalendu
Saha, Debashis
Sankaranarayanan, Mathangi
Sarker, MD Nuruzzaman
Sarker, MD Rashidul
Sarker, Susmit
Satter, Mehdi
Serazi, Md Masum
Seth, Deepak
Seth, Dheeraj
Shanmugasundaram, Vijayakumar
Smadi, Mohammad
Sun, Guangyuan
Syed, Naveed
Tarequzzaman, NFN
Tang, Jingpeng
Tatta, Vasanth

Teo, Lai Ong
 Tokhi, Anurag
 Veluri, Naveen
 Vender, Bradley
 Vijayakumar, Chitra
 Virupakshi, Vamsi
 Viswanathan, Aruna
 Wang, Ju
 Wang, Yanchun
 Wei, Qun

Wolf, Nicole
 Xiao, Qiang
 Yu, Dongsheng
 Yu, Meng
 Yuan, Su
 Zaman, Mahbub
 Zhang, Gendong
 Zhang, Yi
 Zhong, Xiang
 Zhou, Jing Kai

PhD Students:

Canton, Maria
 Dargar, Anup
 Ding, Qin
 Hamer, George
 Hill, Curtis
 Jian, Kuo-Di

Jockheck, William
 Krebsbach, Stephen
 Ottem, Kris
 Sheikh, Abul Kalam
 Zhang, Bei

Graduate Degrees Awarded, 2001-02

Summer Semester, 2001	Degree
Chen, Bing	MS
Islam, Md. Shariful	MS
Maram, Suresh	MS
Veluri, Naveen	MS
Paulson, Patrick	PhD
Ping, Tai Lai	PhD
Fall Semester, 2001	Degree
Patil, Dharmesh	MS
Murkjeekee, Rakhie	MS
Nadig, Rohitaswa	MS
Kotala, Pratap	MS
Qu, Rong	MS
Rehmen, Md	MS
Serazi, Md	MS
Zulfiqer, Sekender	MS
Spring Semester, 2002	Degree
Bhalla, Rajat	MS
Jian, Kuo-di	PHD

Hossain, Md	MS
Peravali, Kishore	MS
Qiao, Haiyan	MS
Rahman, Md. Mizanur	MS
Tokhi, Anurug	MS
Xiao, Qiang	MS