

# 1: University of Minnesota Profile

The University of Minnesota is a statewide resource that makes a significant impact on the economy, society and culture of Minnesota. For 154 years, it has been dedicated to advancing knowledge and serving as a partner for the public good.

With more than 65,000 students enrolled in high-quality programs in the Twin Cities, Duluth, Crookston, Morris, and Rochester, the University is a key educational asset for the state, the region, and the nation.

The University of Minnesota is one of the state's most important assets – it is its

economic and intellectual engine. As a top research institution, it serves as a magnet and a means of growth for talented people, a place where ideas and innovations flourish, and where discoveries and services materially advance Minnesota's economy and quality of life.

As a land-grant institution, the University is strongly connected to Minnesota's communities, large and small, partnering with the public to apply its research for the benefit of the state and its citizens through public engagement.

## A. 10 Things To Know About the University

**1: Degrees Granted:** The University of Minnesota awarded more than 12,000 degrees in 2003-04, the highest ever. Included in this total were new highs for the Twin Cities campus (over 10,000 total degrees and over 6,000 bachelor's degrees) and the Duluth campus (over 1,700 total degrees and over 1,500 bachelor's degrees. Forty percent of the

degrees awarded on the Twin Cities campus were graduate and first-professional degrees (e.g., M.S., Ph.D., M.D., D.D.S.). University graduates play a unique role in keeping Minnesota competitive and connected in our increasingly knowledge-based economy and global society.

**Table 1-1. University of Minnesota degrees by campus, 2003-04.**

<u>Degree</u>	<u>Twin Cities</u>	<u>Duluth</u>	<u>Morris</u>	<u>Crookston</u>	<u>Total</u>
Associate	0	0	0	23	23
Bachelor's	6,049	1,562	350	203	8,164
Master's	2,677	185	0	0	2,862
First Professional	715	0	0	0	715
Doctorate	<u>592</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>592</u>
<b>Total</b>	<b>10,033</b>	<b>1,747</b>	<b>350</b>	<b>226</b>	<b>12,356</b>

Source: Office of Institutional Research and Reporting, University of Minnesota.

**2: State's Only Major Research Institution:**

The University of Minnesota is the state's only major research university. This sets Minnesota apart from the many states that have at least two major research institutions (e.g., Michigan and Michigan State; Iowa and Iowa State; Indiana and Purdue). Its research comprises 98.8 percent of sponsored academic research in Minnesota's higher education institutions – more than one-half billion dollars each year – and creates an estimated 20,000 jobs in Minnesota's private economy. The Minnesota Partnership for Biotechnology and Medical Genomics (University/Mayo Clinic) alone generates \$170 million per year.

**3: Nationally Ranked Public Research University**

The Twin Cities campus ranks consistently within the top seven public research universities in the nation, according to a University of Florida study. It is also among the nation's most comprehensive institutions, one of only four campuses nationally that have agricultural programs as well as an academic health center with a major medical school. The University prides itself on strong programs and departments – from theater and dance to chemical engineering and economics – and its breadth provides unique interdisciplinary strengths, particularly in the life sciences.

**4: State's Economic Driver:** In economic terms, the University also provides significant return on the state's investment. A recent study showed that the University leveraged \$16 for every dollar of state investment in 2001. That means Minnesota realized nearly \$10 billion in economic activity from the state's \$577 million annual investment in the University – an outstanding rate of return for any investment.

**5: Importance of State Support:** State appropriations provided 25.7 percent of University of Minnesota revenue in FY 2004

(down from 29.9 percent in FY 2003), making it the most important, and the most flexible, source of funding. Grants and contracts provided another 26 percent of revenues while tuition and fees provided 18 percent. Private fundraising is an increasingly important source of funding within the University's diverse revenue mix, but this source represents less than 5 percent of the annual operating budget. Most private funds are dedicated to the support of specific activities and cannot be used for general budget needs. In 2003, the University completed a six-year fundraising campaign that raised nearly \$1.7 billion in private donations and pledges. Earnings from endowments provide 4.4 percent of the University's revenue.

**6: Enrollment:** Total enrollment at the University of Minnesota's campuses for fall 2004 was 65,247. Sixty-two percent of registered students were undergraduates. Non-degree seeking students represented over 10 percent of total enrollment.

**7: Governance:** The University of Minnesota was founded in 1851, predating statehood by seven years. It is governed by a 12-member Board of Regents, which is elected by the legislature. Eight members are elected to represent Minnesota's eight congressional districts and four are elected at large.

**8: Distinct Mission:** The statutory mission of the University of Minnesota is to “offer undergraduate, graduate, and professional instruction through the doctoral degree, and...be the primary state-supported academic agency for research and extension services.” (*Minnesota Statutes 135A.052*).

**9: Economical Management:** The University of Minnesota has no separate “system” office. This is an economical management structure, since the University's senior officers double as the chief operating officers for the Twin Cities campus. The

University's auditor, Deloitte & Touche, commented in November 2004: "The University has really tightened itself up. It is an excellent example of an organization that is very focused and very efficient. I'd call it a model of fiscal responsibility."

**10: Statewide Presence:** The University of Minnesota has four established campuses (Twin Cities, Duluth, Morris, Crookston), a

developing cooperative campus in Rochester, six agricultural experiment stations, one forestry center, 18 regional extension offices, and extension personnel in counties throughout the state. The University's public service programs (e.g., Extension Service, clinics in medicine, dentistry, and veterinary medicine, outreach to K-12 education) touch more than 1,000,000 people annually.

## B. Academic Priorities

### Maintaining Excellence, Pushing the Boundaries of Knowledge

The University of Minnesota is actively committed to maintaining and strengthening excellence by investing in its outstanding academic programs and building a culture that supports interdisciplinary work. The University is committed to building excellence through a coherent vision.

The University of Minnesota has many highly ranked academic programs; it is critical that the University continues to provide significant support to these programs in order to maintain the strong disciplines that form the core of basic knowledge. The distinctive contributions of individual disciplines create an intellectual framework for developing deep expertise in specific arenas.

At the same time the University community recognizes that today, more than ever, pushing the boundaries of knowledge in one field often means crossing into other disciplines. Addressing the big questions that confront society in the 21<sup>st</sup> century requires interdisciplinary teams of researchers working together. In the last decade, the academy has begun to realize the untapped potential of interdisciplinary research, and increasingly funding agencies are encouraging interdisciplinary proposals.

Many scholars at the University of Minnesota already are involved in interdisciplinary research collaboratives, and new initiatives will provide the infrastructure for enhancing these collaborations.

### 2005 Status of President's Interdisciplinary Initiatives

Investments in interdisciplinary academic programs are achieving new prominence through the President's Interdisciplinary Initiatives. In addition, through the University's strategic positioning and planning process, colleges are being encouraged to consider investments in the highest level of interdisciplinary collaboration.

Also, the President's 21<sup>st</sup> Century Interdisciplinary Conference Series is providing opportunities for developing new interdisciplinary collaborations and expanding the connections of University of Minnesota research to the needs of society.

In 2003, President Bruininks launched eight interdisciplinary initiatives representing areas of strength and comparative advantage for the University. These areas have high-quality foundational programs, are central to the University's land-grant mission and research

enterprise, and reflect the needs and resources of Minnesota.

They represent areas where further investment will yield significant return in intellectual quality and capital, where the University and the state possess a comparative advantage, and where considerable outside resources can be leveraged. University students at all levels also reap the rewards of these initiatives as they learn in the midst of a dynamic interdisciplinary academic enterprise.

Three of these interdisciplinary priorities are being funded through reallocation of existing resources and private philanthropy. These three initiatives – Children, Youth, and Families; Arts and Humanities; and the Consortium on Law and Values in Health, Environment and the Life Sciences – are more established programs where significant resources already have been allocated.

The remaining five are in the bio-sciences: Brain Function Across the Lifespan; New Products from Biotechnology (Biocatalysis); Healthy Foods, Healthy Lives; Environment and Renewable Energy; and Translational Research in Human Health. These initiatives cannot be fully capitalized without additional support from the state and partnerships with the private sector.

The 2006-2007 biennial budget proposal to the Legislature includes a request to support four of the initiatives in a proposal called “Biosciences for a Healthy Society.”

For the past year, working groups have convened to map the future of the initiatives, and interdisciplinary collaborations are under way.

**Initiative on Arts and Humanities:** This initiative builds on the University’s strengths in the arts and humanities to expand interdisciplinary and collaborative efforts. At the core of this expanded effort will be the

University’s Institute for Advanced Study, scheduled to open in late 2005. The Institute will promote and support distinguished, path-breaking research and creative work at the intersection of the arts, humanities, and social sciences.

The initiative also seeks to transform the arts and humanities at the University and beyond by developing a new interdisciplinary arts and humanities curriculum, supporting new creative processes and works of art, and deepening collaborations with other arts organizations and educators in the community.

An international conference, “Reclaiming the Arts: Strategies for Commitment,” was held in December 2004 to begin the transformation of the arts at the University. Searches are under way for distinguished faculty in the arts and humanities whose research and teaching is path-breaking and interdisciplinary.

**Initiative on Children, Youth, and Families:**

The contributions a child can make to society as an adult can be traced directly to the first few years of life. Minnesota has an important stake in the adults its children will become. This initiative represents an institutional commitment to deepen and broaden the University’s capacity to address the pressing issues that face the state when it comes to children, youth, and families.

President Bruininks launched this initiative in 2002 through a statewide summit. It is focused on creating new and enhancing existing mechanisms for leveraging faculty support for cross-disciplinary approaches to research, teaching, and public engagement. By bringing together researchers and educators from around the University with practitioners, policy makers, and opinion leaders, the initiative seeks to encourage research by creating a new understanding of how to enhance outcomes for children at every developmental stage in their lives.

In so doing, tangible benefits will be reaped for not only the children and families themselves, but also the common public good, including enhanced returns in school readiness, parenting skills, children's mental health, workforce capacity, improved public policy and best practices, and economic and community development. A new interdisciplinary research agenda is being developed as part of this initiative. The new Center for Children's Mental Health and the Commission on Out-of-School-Time developed from partnerships launched by the initiative.

### **New Products from Biotechnology**

**(Biocatalysis):** As a result of former President Yudof's initiative in molecular and cellular biology (see 1998 Initiatives summary below), the University has a strengthened basic science program in these areas. It is critical that the University maintain its strength in basic science by continuing investment. The University is building on these investments in basic research by launching a wide range of investments in applications of molecular and cellular biology and genetics.

The University has a long tradition and world-class expertise in the science of biocatalysis, the use of biological catalysts and processes to transform plant material into useful products. Biocatalysis enables renewable resources, such as forests, grasslands, and the wheat and corn raised by farmers, to become the new raw materials for production and energy needs.

This initiative takes the most modern approaches to biology, in areas where the University has great strength in faculty and facilities, to develop exciting new uses for Minnesota's abundant agricultural products and natural resources, from plastics and other industrial products to new drugs. A number of collaborative projects have been funded in both industrial biocatalysis and chemical

biology. More than 10 departments are involved in this effort.

### **Initiative on Translational Research in**

**Human Health:** This initiative strengthens the ability of the University to continue to play a leading role in the rapidly changing world of health sciences. The working group for this initiative is collaborating with working groups from the other bioscience/health science-based initiatives in an effort to solidify the University's commitment and reach.

Two key components of this initiative are: 1) the McGuire Translational Research Facility that will provide scientists with a physical environment that promotes collaboration, fosters creativity, promotes innovation, and shortens the time to develop new technologies; and 2) targeted investments in faculty to maintain leadership in cutting-edge research in areas such as oncology (cancer), neurosciences (brain functions and diseases), cardiovascular (heart) disease, organ transplantation, stem-cell development applications, and clinical research. This initiative works in close alliance with the Minnesota Partnership for Biotechnology and Medical Genomics where Mayo Clinic and University researchers collaborate to generate innovative technology that can be translated into new treatment methods.

### **Initiative on Brain Development and Vitality Across the Lifespan:**

The brain governs every aspect of people's lives. Throughout life, the brain changes in response to new challenges – experiences, physical development, aging, injury, and disease. New tools, including modern genetics, molecular/cellular biology and state-of-the-art imaging techniques, are now giving researchers fresh insight into how changes in the brain influence the way people think, feel, and act from infancy to old age.

Research scientists are beginning to answer some of the biggest questions about the brain,

such as how its structure and function are affected by age, injury, or disease. The University is the only major research institution taking a lifespan approach to brain development and function. This approach will transform the way scientists understand and treat brain disease and disorders including devastating diseases such as Alzheimer's.

A team of University researchers focusing on brain function across the lifespan has the potential to begin to solve the puzzle of the brain, resulting in better diagnosis, new treatments for brain disorders and disease, and a new ability to support learning and memory in healthy individuals across the lifespan. The working group is developing a proposal for a Center for Developmental Cognitive Neuroscience modeled after the Cancer Center.

**Initiative on Healthy Foods, Healthy Lives:**

The University is uniquely positioned as a national leader for an initiative focusing on food and health promotion, being one of only two U.S. universities to integrate six key components on one campus: agriculture, human nutrition, medicine, public health, exercise science, and veterinary medicine.

The initiative links activities in four priority areas to address critical health issues over the next 10 years – bridging quality science to sound public policy and transforming what we know into what we do. The four priority areas are: to use and advance knowledge about the integration of agriculture, food science, nutrition, and medicine to promote healthy lives; to emphasize prevention of diet-related chronic diseases and obesity through diet, exercise, and human behavior; to enhance food safety at all stages, from farm to table; and to inform public policy.

A conference in fall 2004 brought together researchers and practitioners to develop a coordinated agenda for this initiative. The initiative has received a grant from the

Homeland Security Administration to fund a center focused on food safety.

**Initiative on Environment and Renewable**

**Energy:** Perhaps the most critical global challenge for the 21<sup>st</sup> century is maintaining a healthy, productive environment that will continue to support life in the face of an increasing world population, energy shortages, shrinking freshwater supplies, destruction of natural habitats, and declining genetic diversity. Integrating all we know – from scientific, economic, social, and spiritual perspectives – is key to understanding and resolving these issues.

The initiative is grounded in three major inter-related projects. The first builds on the recommendations of the Commission on Environmental Science and Policy, appointed by then Provost Robert Bruininks, to create an integrated and transparent approach to the environment at the University. A coordinator has been hired to support these activities. The second focuses research and technology transfer on renewable energy with funding from Xcel Energy under a mandate from the legislature through the Prairie Island Bill.

The third is aimed at integrating sustainable practices and energy conservation across the full range of University activities under the leadership of University Services. A steering committee is developing a comprehensive plan to fulfill the expectations of a new Regents Policy on Sustainability.

**Initiative on Law and Values in Health, Environment, and the Life Sciences:**

This initiative deepens the University's commitment to the Consortium on Law and Values in Health, Environment, and the Life Sciences. The Consortium was founded in 2000 to respond to the most challenging legal and ethical questions of the 21<sup>st</sup> century, questions posed by biomedicine and the life sciences.

These are questions that require a new kind of cross-disciplinary work fully marrying legal, ethical, and scientific expertise. The Consortium leverages the University’s strengths in the life sciences, humanities, law, bioethics, and public policy to do cutting-edge work on the societal implications of the life sciences.

During 2004, the Consortium launched a new multidisciplinary journal, the “Minnesota Journal of Law, Science, & Technology.” It also continued a series of events aimed at advancing the conversation on science, the law, and society for the University and the wider community.

**Final Summary of 1998 Academic Interdisciplinary Initiatives**

In 1998, former President Mark Yudof commissioned a set of academic interdisciplinary initiatives designed to strengthen the University’s research, teaching, and outreach programs and to advance the University’s reputation in areas that are critically important to the economic development of the state.

The 1998 Minnesota Legislature appropriated \$18,575,000 to the University to support these initiatives. The University supplemented the initial investment with internally reallocated resources, externally leveraged funds, and related capital investments to establish and develop five Academic Interdisciplinary Initiatives: Agricultural Research and Outreach, Design, Digital Technology, Molecular and Cellular Biology, and New Media. Table 1-2 summarizes the systemwide financial impact of the initial appropriation.

**Table 1-2. 1998 state appropriations for University of Minnesota interdisciplinary initiatives.**

<u>Initiative</u>	<u>State Appropriation</u>
Digital Technology	\$4,500,000
Molecular and Cellular Biology	7,375,000
Design	1,150,000
New Media	1,700,000
Agricultural Research and Outreach	2,200,000
University of Minnesota – Crookston (Agriculture, Digital)	600,000
University of Minnesota – Duluth (Biology, Design, Agriculture)	1,000,000
University of Minnesota – Morris (Agriculture)	50,000
<b>Total:</b>	<b>\$18,575,000</b>

Source: Office of Planning and Academic Affairs, University of Minnesota.

A major consequence of the investment was the ability to strengthen academic departments through the creation of 87.5 new faculty positions:

- 20 in Digital Technology
- 41 in Molecular and Cellular Biology
- 2.5 in Design
- 8 in New Media
- 8 in Agriculture

- 8 on the coordinate campuses.

In 2004, under the direction of the Office of Planning and Academic Affairs, a self-study report was prepared for each initiative and teams of external reviewers were formed to evaluate the initiatives and offer recommendations for the future. In particular, reviewers were asked:

- to consider whether the initiative had achieved its stated objectives
- to compare the initiative to similar programs across the country
- to assess the initiative's impact on the University and the fostering of interdisciplinary activities
- to evaluate the return on investment
- to identify theoretical and empirical advancements that occurred as a result of the initiative.

Each external review team prepared a written report summarizing their findings and recommendations.

Following is a summary of the 1998 initiatives.

**Agricultural Research and Outreach:** The investment in Agricultural Research and Outreach enables the University to respond to important challenges in food production, food quality, and the marketing of agricultural products – all areas of critical importance to the state's rural economy. In these areas, agricultural research is strongly linked to the University's initiatives in genomics.

The external review team used such terms as "dramatic progress" and noted that the University had increased its research and outreach capacity within and outside the institution.

**Design:** The Design Institute develops advanced research, educational programs, and interdisciplinary partnerships to improve design in the public realm. The Institute addresses the design of products, services, and environments, as well as the social processes that bring the everyday material landscape into being. Looking beyond issues of styling, the Institute sees design as a strategic mode of thinking, a form of conflict resolution whose tangible outcomes express successful negotiation of diverse values and interests. Through its program of fellowships, events,

and communications, the Institute fosters new models for collaboration and connection among many fields of inquiry, such as genetics, computer science, anthropology, public art, engineering, civic governance, and graphic design. By supporting the development of new design tools and prototypes, the Design Institute champions expanded design choices to enhance the lives of citizens, in Minnesota and nationwide.

The external review team concluded that the objectives "[had] been achieved, and in a remarkably short period of time." It noted the exemplary achievement in design research.

**Digital Technology:** The Digital Technology Center's goal is to become a center of excellence at the University of Minnesota and to form partnerships with the community to re-establish Minnesota's commanding position in digital technology as we move ahead in the information era. The Center focuses on leading-edge research and business areas: data storage, analysis and visualization, scientific computation, telecommunications, and software engineering. The Digital Technology Center also includes the Supercomputing Institute for Digital Simulation and Advance Computation and the Laboratory for Computational Science and Engineering, two research units which predate the establishment of the Academic Interdisciplinary Initiatives.

The external review team noted that this initiative better positions the University to attract greater funding for research.

**Molecular and Cellular Biology:** The University aspires to be at the leading edge of the revolution occurring in the biological sciences. The Molecular and Cellular Biology Initiative is founded on reorganization of the biological sciences into four new departments: Biochemistry, Molecular Biology, and Biophysics; Neuroscience; Genetics, Cell Biology, and Development; and Plant Biology.

The initiative is strengthening the University's capacity to connect science to industrial applications across plant, animal, and medical fields. The initiative focuses on functional genomics, a branch of science that determines the mechanisms by which thousands of genes are orchestrated to develop and maintain an organism.

The external review team observed that this initiative had fortified basic cellular and molecular biology throughout the University.

**New Media:** The New Media Initiative is strengthening the School of Journalism and Mass Communication by building a nationally preeminent program which provides students with the best possible academic and professional education for entry into diverse careers in this rapidly changing industry. The School's Institute for New Media Studies is a center for interdisciplinary research, industry outreach, and collaboration on emerging issues in the new media arena.

The external review team stated that this initiative has been "transformative" for journalism and mass communication at the University: "The institution's responsiveness and foresight has allowed it to reclaim its place among the elite schools of journalism in the country."

**University of Minnesota – Crookston:** Investments at the University's Crookston campus have been made through the Agricultural Research and Outreach Initiative and the Digital Technology Initiative, funding two new faculty positions.

**University of Minnesota – Duluth:** Investments at the Duluth campus have been

made through three of the Academic Interdisciplinary Initiatives – Molecular and Cellular Biology, Design, and Agricultural Research and Outreach – funding six new faculty positions.

**University of Minnesota – Morris:** Funds from the Agricultural Research and Outreach Initiative were used at the Morris campus to support the Center for Small Towns, a community outreach program that assists small towns with locally identified issues by creating applied learning opportunities for faculty and students.

### **2006-07 Biennial Budget Proposal**

The University of Minnesota's biennial budget proposal to the state is a partnership proposal designed to support the University's academic priorities and fulfill its mission as the state's research and land-grant university.

The request proposes a 50/50 partnership between the University and the state, with the University investing \$42 million in FY 2006 and an additional \$42 million in FY 2007 in support of base compensation increases, operating costs, and academic priorities.

The University's investment will be supported by internal reallocation and modest tuition increases. The state is asked to provide a matching investment targeted at biosciences for a healthy society; attracting and retaining talent for Minnesota's future; and creating and sustaining essential research and technology infrastructure.

