BOARD OF REGENTS
UNIVERSITY OF MINNESOTA

Mission Fulfillment

December 2019

December 12, 2019

9:15 a.m.

Boardroom, McNamara Alumni Center

MIS - DEC 2019

BOARD OF REGENTS
DOCKET ITEM SUMMARY

Mission Fulfillment **December 12, 2019**

AGENDA ITEM: Changes to Twin Cities Campus Liberal Education Requirements

☐ **Review** ☐ **Review + Action** ☐ **Action** ☒ **Discussion**

☐ *This is a report required by Board policy.*

PRESENTERS: Robert McMaster, Vice Provost and Dean of Undergraduate Education
Sally Gregory Kohlstedt, Chair, Liberal Education Redesign Committee

PURPOSE & KEY POINTS

The purpose of this item is committee engagement with changes to liberal education requirements on the Twin Cities campus.

The University of Minnesota and its faculty are committed to providing students with a liberal education that invites investigation of the world from new perspectives, learning new ways of thinking, and growing as active citizens and lifelong learners. This discussion will engage the committee on the following topics:

- A history of liberal education at the University.
- An overview of the current liberal education requirements.
- A summary of the liberal education pre-planning and redesign process.
- An introduction to the proposed General Education plans.

BACKGROUND INFORMATION

The following information items have been provided to the Mission Fulfillment Committee on this topic:

- September 12, 2019: *Liberal Education Redesign Update*
- December 14, 2017: *Liberal Education Redesign Update*

Liberal Education Overview

The University of Minnesota Liberal Education requirements have been shaped over time by three major committees. The first worked in the mid 1990's to transition the University from college-based Liberal Education requirements to a single set of campus-wide requirements. That curriculum was further shaped from 2005-2007 and most recently by the Liberal Education Pre-Planning and Liberal Education Redesign Committees from 2015–2019. Each committee has been mindful of the Minnesota Transfer Curriculum in support of transfer students.

Minnesota Transfer Curriculum

Core Goal Areas	Theme Goal Areas
• Communication • Critical Thinking • Natural Sciences • Mathematical/Logical Reasoning • History & the Social & Behavioral Sciences • The Humanities & Fine Arts	• Human Diversity • Global Perspective • Ethical & Civic Responsibility • People & the Environment

Current Liberal Education Requirements

Currently, students complete 7 Diversified Core courses, one in each category below, and 4 of 5 Designated Theme areas. In addition, students complete 4 Writing Intensive (WI) courses. At least 2 of the 4 WI courses must be taken at the upper division level (3xxx or higher).

Diversified Core	Designated Themes	Writing Intensive
• Arts & Humanities • Biological Sciences • Historical Perspectives • Literature • Mathematical Thinking • Physical Sciences • Social Sciences	• Civic Life and Ethics • Diversity and Social Justice in the U.S. • The Environment • Global Perspectives • Technology & Society	• Students complete 4 writing intensive (WI) courses.

Liberal Education courses are offered across campus and expose students to ways of knowing (Diversified Core) and contemporary issues (Designated Themes) facing society. All undergraduate colleges offer Liberal Education courses, although the majority are offered by the College of Liberal Arts, followed by the College of Science and Engineering, as indicated in the table on page 2: Liberal Education Enrollment by College: 2018-2019.

Liberal Education Enrollment by College: 2018-2019

	CSOM	CEHD	CSE	CBS	SON	CLA	CCAPS	CDes	CFANS
Core Enrollments	0	4,682	23,418	4,910	86	35,761	0	1,578	2,170
Core Percent	0.0%	6.4%	32.3%	6.8%	0.1%	49.3%	0.0%	2.2%	3.0%
Theme Enrollments	859	3,379	5,146	1,764	355	25,734	5	1,663	6,391
Theme Percent	1.9%	7.5%	11.4%	3.9%	0.8%	56.8%	0.0%	3.7%	14.1%
LE Enrollments	2,679	8,240	28,429	6,631	686	50,522	988	2,965	8,196
LE Percent	2.5%	7.5%	26.0%	6.1%	0.6%	46.2%	0.9%	2.7%	7.5%

Many courses meet more than one requirement, as reflected in the table below.

Current Liberal Education Courses

Total Courses: 855 Cores: 526 Themes: 605	*Theme Only (329)*	Physical Sciences *(38)*	Biological Sciences *(23)*	Social Sciences *(81)*	Historical Perspectives *(138)*	Literature *(82)*	Arts & Humanities *(138)*	Mathematical Thinking *(26)*
Core Only (250)		30	13	28	44	38	72	25
Diversity and Social Justice *(142)*	53	0	0	20	27	12	30	0
Global Perspectives *(227)*	120	0	0	25	39	26	17	0
Environment *(71)*	48	7	6	1	6	2	1	0
Civic Life and Ethics *(112)*	76	0	1	3	15	4	13	0
Technology & Society *(53)*	32	1	3	4	7	0	5	1

After two years of discussion and forums hosted by the Liberal Education Pre-Planning committee, the Liberal Education Redesign Committee was charged in Fall 2017 and asked to consider the following questions:

1. What design would serve UMTC students best – a core curriculum, continuation and adjustment of the current distribution requirements, or another model?
2. What is the best credit load for a basic, required curriculum? The outcome needs to enable timely graduation, enough credits for major work, and space for electives.
3. Among the colleges/units that offer courses (undergraduate, professional, centers), should there be any limit on which of them may offer LE courses?
4. Should the majority of the LE curriculum be focused on the first two years of should LE be deliberately spread throughout the undergraduate experience?
5. How should the revised or new curriculum be assessed?
6. Should the curriculum be offered only by tenure and tenure-track faculty and long-term P&A instructors, as in the current arrangement?
7. By what process should courses be determined for inclusion in the LE curriculum?
8. Should specific learning outcomes be attached to each course?

After two years of focused discussion, consultation, and research, the Liberal Education Redesign Committee has forwarded two proposed curricular plans to the Faculty Senate for Consideration. Plan A and Plan D are included in these docket materials.

Plan A
General Education DRAFT
Working Plan 10.28.19

Students complete a minimum of 30 credits. **Courses may not be double-certified between Disciplinary and Thematic Inquiry categories.** Fundamental courses may be overlayed with any course in the University, including a GE course.

First Year Writing
4 Credits

Satisfied through university composition with addition of information literacy.

Disciplinary Inquiry
6 courses (20 credits)

Student must take **six (6) courses**, one in each of the disciplinary areas below.

- Arts & Humanities
- Literature
- Biological Sciences
- Physical Sciences
- Social Sciences
- History

Thematic Inquiry
2 courses (6 credits)

Students will take **two (2) courses. One (1) from each of the two (2) groupings** below.

These courses address thematic issues deemed critical for students to understand as global citizens in the 21st century.

- Diversity, Power, and Justice in the U.S.
- Global Perspectives

- Technology and Social Transformations
- Environment and Sustainability

Fundamentals

Writing (W)
*Four Writing Intensive **(WI)** courses may overlay with other courses in the General Education and regular curricula. (0-12 credits)*

Quantitative Reasoning and Mathematics (Q)
Satisfied through courses that meet requirements for quantitative thinking and mathematics. (0-3 credits)

Ethics (E)
Satisfied through courses that include the philosophical underpinnings of ethics, the practical ways ethics operates, and the development of personal responsibility and engagement relating to contemporary challenges. (0-3 credits)

Fundamentals

Revised Plan D
General Education DRAFT
Working Plan 10.28.19

Students complete a minimum of 24 credits. **Courses can be double-certified across the Disciplinary, Thematic, and Fundamental categories** in any combination. Courses **cannot** be double-certified within the same category. Courses **cannot** be triple certified.

First Year Writing

4 Credits

Satisfied through university composition with addition of information literacy.

Disciplinary Inquiry

6 courses (20 credits)

Student must take **six (6) courses**, one in each of the disciplinary areas below.

- Arts & Humanities
- Biological Sciences
- History
- Literature
- Physical Sciences
- Social Sciences

Thematic Inquiry

4 courses (0-12 credits)

Students must take **four (4) courses.** One in each of the thematic areas below.

- Diversity, Power, and Justice in the U.S.
- Global Perspectives
- Technology and Social Transformations
- Environment and Sustainability

Fundamentals

Writing (W)

*Four Writing Intensive **(WI)** courses may be double-certified with other requirements in the General Education curriculum and courses in the regular curriculum. (0-12 credits)*

Quantitative Reasoning and Mathematics (Q)

Satisfied through courses that meet requirements for quantitative thinking and mathematics. (0-3 credits)

Ethics (E)

Satisfied through courses that include the philosophical underpinnings of ethics, the practical ways ethics operates, and the development of personal responsibility and engagement relating to contemporary challenges. (0-3 credits)

Fundamentals

December 12, 2019

Liberal Education Overview

Robert McMaster
Vice Provost and Dean of Undergraduate Education
Professor, Department of Geography, Environment and Society

Sally Gregory Kohlstedt
Chair, Liberal Education Redesign Committee
Professor, Department of Earth and Environmental Sciences

UMTC Liberal Education

- Curriculum owned by the faculty
  - Approved by UMTC Faculty Senate
- Three major committees
  - Mid 1990s
  - 2005-07
  - 2015-19
- Philosophy is around cores and themes
- Sensitive to total number of credits
- Include writing requirements
- Mindful of the Minnesota Transfer Curriculum (MNTC)

History of Liberal Education at the U of M Twin Cities

Pre 1994: “Chambers” requirements

- Collegiate-based requirements

1994 – 2010: “Howe” report

- Campus-wide requirements
- diversified core requirements, 8 courses
- 4 designated theme requirements
- First Year Writing
- 4 writing intensive courses

Core requirements

- Historical Perspectives (3 credits)
- Literature (3 credits)
- Other Humanities (3 credits)
- Mathematical Thinking (3 credits)
- Physical Sciences with lab (4 credits)
- Biological Sciences with lab (4 credits)
- Social Sciences (6 credits)

Theme requirements

- Citizenship and Public Ethics (3 credits)
- Cultural Diversity (3 credits)
- The Environment (3 credits)
- International Perspectives (3 credits)

History of Liberal Education at the U of M Twin Cities

2005-2007 LE Committee

- Re-envisioned the Core to be not about "coverage" but rather about introducing students to a "range of 'ways of knowing'"
- Modified the existing LE Themes to maintain relevance and added a fifth theme

Requirements: Implemented in Fall 2010

- Campus-wide requirements
- diversified core requirements, 7 courses
- 4 of 5 designated theme requirements
- First Year Writing
- 4 writing intensive courses

Core requirements

- Arts & Humanities (3 credits)
- Biological Sciences with lab (4 credits)
- Historical Perspectives (3 credits)
- Literature (3 credits)
- Mathematical Thinking (3 credits)
- Physical Sciences with lab (4 credits)
- Social Sciences (6 credits)

Theme requirements (4 of 5, 3 credits each)

- Civic Life and Ethics
- Diversity and Social Justice in the U.S.
- The Environment
- Global Perspectives
- Technology & Society

Current Liberal Education Courses

Total Courses: 855 Cores: 526 Themes: 605	***Theme Only (329)***	**Physical Sciences *(38)***	**Biological Sciences *(23)***	**Social Sciences *(81)***	**Historical Perspectives *(138)***	**Literature *(82)***	**Arts & Humanities *(138)***	**Mathematical Thinking *(26)***
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LE Percent	2.5%	7.5%	26.0%	6.1%	0.6%	46.2%	0.9%	2.7%	7.5%

Writing Intensive courses are not reflected in the data above.

Liberal Education Overview

Liberal Education Redesign

The Liberal Education Pre-Planning Group met from Fall 2015 – Fall 2017 and, based on feedback from 3 faculty forums, determined it was the right time to charge a redesign committee with developing one or more possible designs/models for a revised Liberal Education curriculum.

Fall 2015 – Fall 2017

LE Pre-Planning Committee

Nov 2017

Liberal Education Redesign Committee

May – Oct 2019

Proposed Plans Released, Feedback Gathered

December 2019

Proposed General Education Plans to the Faculty Senate

LE Redesign Committee Considerations

1. What design would serve UMTC students best – a core curriculum, continuation and adjustment of the current distribution requirements, or another model?
2. What is the best credit load for a basic, required curriculum? The outcome needs to enable timely graduation, enough credits for major work, and space for electives.
3. Among the colleges/units that offer courses (undergraduate, professional, centers), should there be any limit on which of them may offer LE courses?
4. Should the majority of the LE curriculum be focused on the first two years of should LE be deliberately spread throughout the undergraduate experience?
5. How should the revised or new curriculum be assessed?
6. Should the curriculum be offered only by tenure and tenure-track faculty and long-term P&A instructors, as in the current arrangement?
7. By what process should courses be determined for inclusion in the LE curriculum?
8. Should specific learning outcomes be attached to each course?

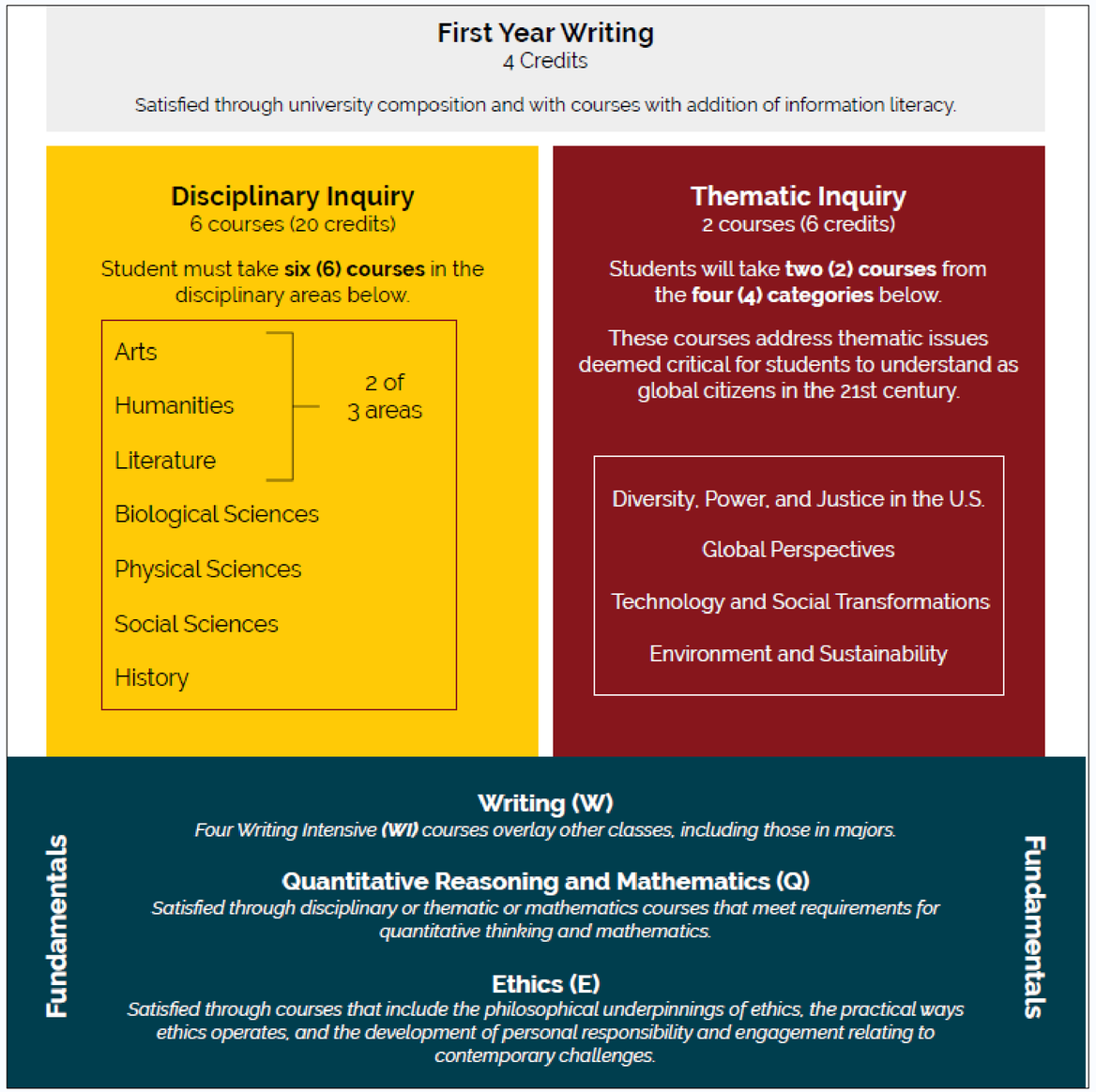
LE Redesign Committee Data Reviewed

- Incoming NHS Students by Transfer Credit: Characteristics
  - Greater Minnesota students are less likely than Twin Cities metro students to enter with zero credit
  - First Generation and Students of Color are more likely to enter with zero credit
- Liberal Education course enrollment history
- Graduation rates by college
- Number of credits required by undergraduate majors
  - Range: 30-110 credits
  - Average: 63.2
- Average number of LE courses students completed
  - The average number of students completed 15.17-15.78 LE courses (2011 NHS students who graduated in 2015, 2016, or 2017)
  - Students took on average 6.10 courses to fulfill their LE requirements

Proposed Plans

Three proposed plans were released to the University Community in May 2019.

- Plan A (pictured right)
  - 6 Disciplinary Inquiry
  - 2 Thematic Inquiry
- Plan B
  - Students choose 5 of 6 Disciplinary Inquiry
  - Students choose 3 of 4 Thematic Inquiry
- Plan C
  - Students complete 8 courses (5-6 Disciplinary Inquiry and 2-3 Thematic Inquiry).



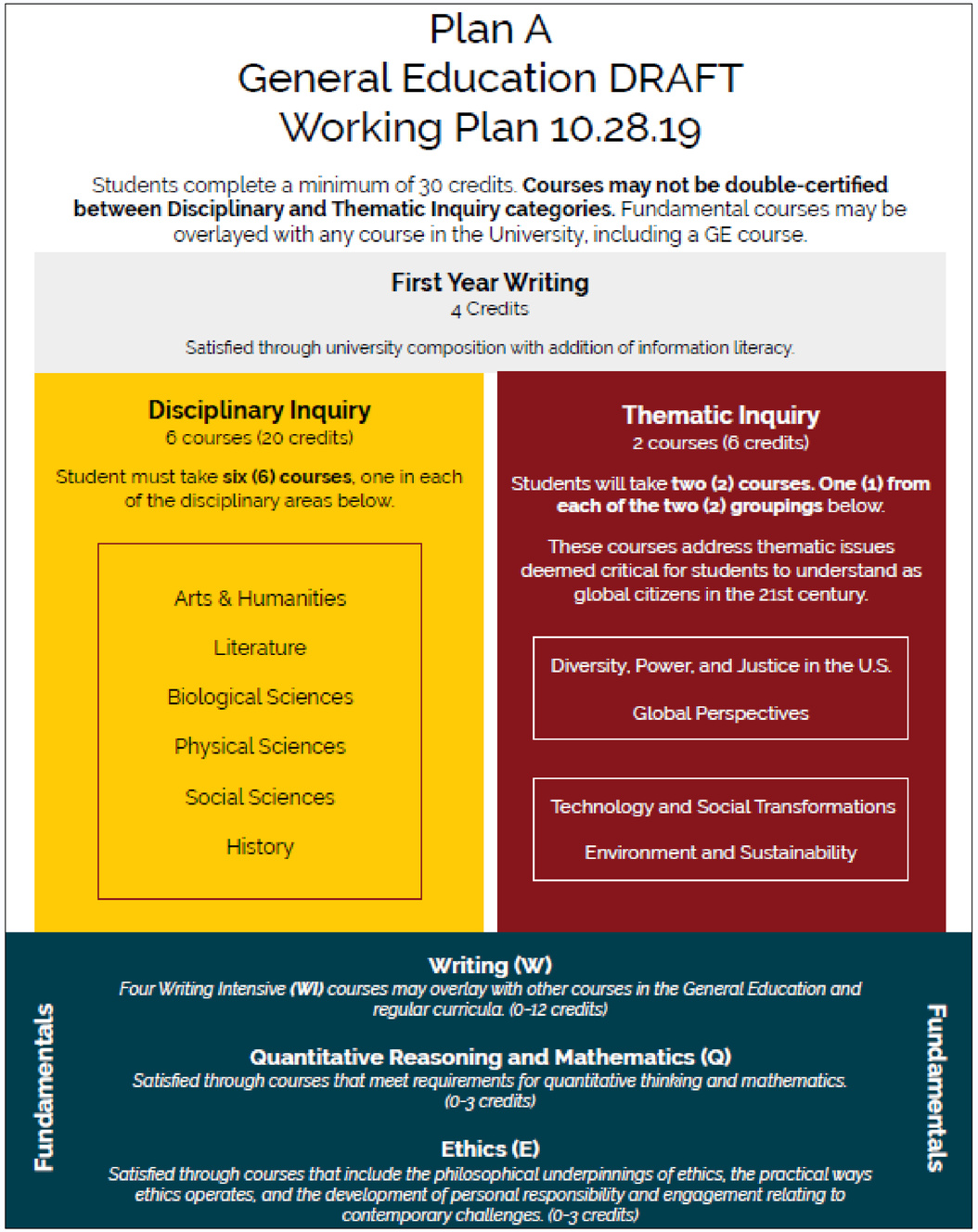
Liberal Education Overview

Proposed Plans

After receiving feedback, the committee circulated two plans in October 2019.

Plan A: Key Characteristics

- First-Year Writing to include content about information literacy
- 6 Disciplinary Inquiry courses
- 2 Thematic Inquiry courses: Students choose 2 courses, 1 from each grouping
- Courses may not be double-certified between Disciplinary Inquiry and Thematic Inquiry categories
- Fundamentals courses may be overlayed with any course in the University



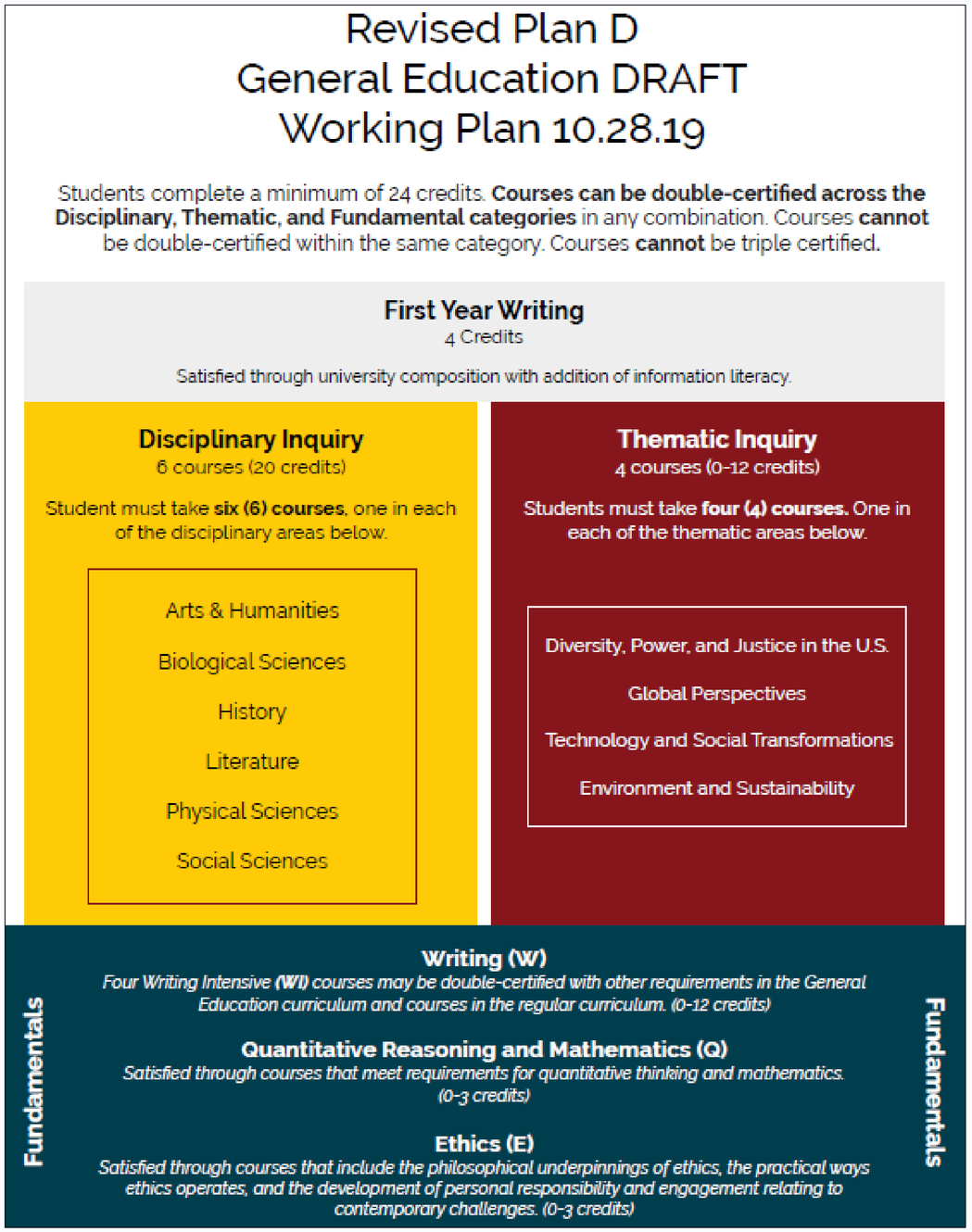
Liberal Education Overview

Proposed Plans

After receiving feedback, the committee circulated two plans in October 2019.

Revised Plan D: Key Characteristics

- First-Year Writing to include content about information literacy
- 6 Disciplinary Inquiry courses
- 4 Thematic Inquiry courses
- Courses may be double-certified across the Disciplinary, Thematic, and Fundamentals categories in any combination.
- Courses cannot be double-certified within the same category.
- Courses cannot be triple-certified.



Liberal Education Overview

Minnesota Transfer Curriculum

Core Goal Areas

1. Communication
2. Critical Thinking
3. Natural Sciences
4. Mathematical/Logical Reasoning
5. History & the Social & Behavioral Sciences
6. The Humanities & Fine Arts

Theme Goal Areas

7. Human Diversity
8. Global Perspective
9. Ethical & Civic Responsibility
10. People & the Environment

Feedback Collection Process

- Prior to the proposed plans being released:
  - Colleges were invited to submit their priorities in writing
  - Committee chair met with the Faculty Consultative Committee, the Undergraduate Advisory Board, Minnesota Student Association leadership, the Advising Steering Committee, and collegiate faculty groups by invitation to gather input and feedback
- Following the release of proposed plans, feedback was sought via:
  - Online LE Planning Forum
  - Three in-person forums: 1 for staff academic advisors and 2 for faculty
  - Meeting with the Undergraduate Advisory Board
  - Minnesota Student Association
  - Academy of Distinguished Teachers Luncheon
  - Committee chair received emails and met in-person with individuals and faculty groups by invitation

THANK YOU

Discussion + Questions

University of Minnesota

Driven to Discover®

Crookston Duluth Morris Rochester Twin Cities

BOARD OF REGENTS
DOCKET ITEM SUMMARY

Mission Fulfillment **December 12, 2019**

AGENDA ITEM: Campus Climate: Crookston, Duluth, Morris, and Rochester Campuses

☐ **Review** ☐ **Review + Action** ☐ **Action** ☒ **Discussion**

☐ *This is a report required by Board policy.*

PRESENTERS: John Hoffman, Vice Chancellor for Academic and Student Affairs, UMC
Lisa Erwin, Vice Chancellor for Student Life and Dean of Students, UMD
Sandra Olson-Loy, Vice Chancellor for Student Affairs, UMM
Andrew Williams, Vice Chancellor for Student Success, Engagement & Equity, UMR
Michael Goh, Vice President, Office for Equity and Diversity

PURPOSE & KEY POINTS

The purpose of this item is discussion of campus climate on the Crookston, Duluth, Morris, and Rochester campuses. It continues the campus climate conversation that began at the October meeting with a discussion of campus climate on the Twin Cities campus. This month's discussion will address the following for UMC, UMD, UMM and UMR:

- How campus climate is assessed.
- Key aspects about climate, including harassment, political divides, regional differences, town/gown relationships, and the like.
- Efforts aligned with identified priority areas.

The item will also include a brief description about the general definition of climate and overarching University values related to campus climate.

University of Minnesota Board of Regents
Mission Fulfillment Committee
December 12, 2019

Campus Climate: Crookston, Duluth, Morris, and Rochester Campuses

Campus: Crookston

Over the past several years, the University of Minnesota Crookston has begun to take a closer look at campus climate, especially as related to its strategic goal for addressing diversity, equity, and belonging. This is important as the campus has become increasingly diverse over the past 10 years and this fall, UMN Crookston admitted its most racially diverse incoming class in school history (21% students of color on campus). To place this number in context, 8% of individuals in Minnesota Senate District 1, 14% of individuals in Polk County, and 32% of students in Crookston public schools are persons of color (Minnesota State Demographic Center, National Center for Education Statistics).

As we gear up for a more comprehensive study of campus climate in the coming year, it is important to note the work that we have done. In 2016, UMN Crookston administered the Intercultural Development Inventory (IDI) with campus administrators. The IDI assesses cultural competence using five developmental orientations (See Figure 1 below). A key strength of this approach is how it can inform individual and organizational development along a continuum.

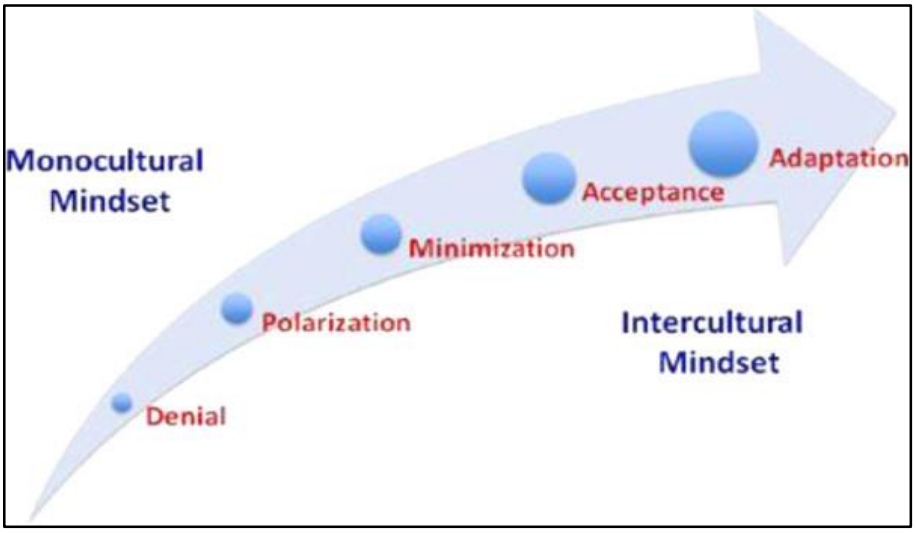


Figure 1. The five Intercultural Development Inventory Orientations

The 2016 administration of the IDI indicated that UMN Crookston's leadership largely fell within the "minimization" orientation. As this was a limited administration of the IDI, UMN Crookston conducted a series of focus groups during the 2018-2019 academic year. The findings of these focus groups generally

supported the “minimization” assessment for the campus. Additional data points include the 2015 administration of the National Survey of Student Engagement (NSSE) and recent Employment Engagement surveys. Minimization, which is more developmentally advanced than the defensive, us-versus-them “polarization” orientation, focuses on commonalities and minimizes the value of differences. In contrast, the still more advanced “acceptance” orientation emphasizes both commonalities and differences. To use individuals with autism as an example, polarization might emphasize how neurotypical youth are “better than” “deficient” individuals who have autism, minimization would talk about the ways in which individuals with autism can work to be more like “normal” individuals, and acceptance would honor similarities while also addressing the contributions that individuals with autism make because of their unique ways of knowing, doing, and experiencing the world. Similar patterns exist for gender, race, ethnicity, sexual orientation, religion, political worldview, etc.

Among the reasons for studying campus climate is its impact on student success. Thus, UMN Crookston has carefully attended to examining and disaggregating student success data. As shown in Table 1. Because approximately half of the students who leave UMN Crookston do so in the first year and because graduation rates are lagging indicators of success that do not reflect recently implemented changes and interventions, we focus on retention to the second year of college as a primary student success indicator. As shown in the table, UMN Crookston retains 72.6% of its first-year students to the second year. Though lower than the rate for other University of Minnesota System institutions, this is higher than the 70.6% national average for public four-year universities reported by the National Student Clearinghouse. Students from Greater Minnesota, most of whom come from rural communities, significantly outperform the campus as a whole. This impressive as National Student Clearinghouse data show that students from rural communities are less likely to attend college and those who do are less likely to persist when compared to students from metropolitan communities. For students who are the first in their families to go to college and those from low-income families (Pell-eligible), there are small achievement rate gaps. While we aim to eliminate these gaps, they are smaller than the gaps observed across higher education according to reports by the Center for First Generation College Student Success and the National Center for Education Statistics. The persistence rate gap for students of color at UMN Crookston is large.

Table 1. Disaggregated Student Success Data

Student Population	Retention Rate to the 2nd Year	4-Year Graduation Rate	6-Year Graduation Rate
All Students	72.6%	43.7%	52.3%
Greater Minnesota Students	83.2%	51.5%	59.6%
First-Generation Students	70.7%	44.0%	47.8%
Pell-Eligible Students	68.0%	36.1%	46.0%
Students of Color	55.4%	25.5%	36.8%

Notes. All data are five-year averages.

UMN Crookston is currently implementing two significant interventions to address student success and campus climate. The first of these is required first-year seminar courses for all on-campus students. In the fall, students are completing a 2.0 credit "UMC 1200" course that includes modules addressing academic success skills, health and wellness, and cultural competency. Reflecting the intended move from "minimization" to "awareness" on the IDI, cultural competency assignments have been designed to challenge all students to name and reflect on their various identities (race, gender, sexual orientation, religion, ability, political, first-generation status, family income, etc.), thus bringing them to awareness. Coupled with lessons addressing how to engage in difficult dialogues that are mindful of difference, students continue in the spring with a 1.0 credit "UMC 1202" in which they engage critical thinking exercises organized around faculty-generated topics such as the farm bill, genetically modified foods, environmental sustainability, and artificial intelligence.

The second intervention is the creation of a Student Success Center that combines diversity and multicultural functions with advising, tutoring, career services. The Student Success Center serves as a data-informed hub that focuses on student success. The Student Success Center is also working on the shift from "minimization" to "awareness." Within a minimization orientation, all students are assumed to be mostly the same. Thus, when a student does not perform well, the orientation is on diagnosing what is wrong with the student and fixing the student, a so-called "deficit" approach. Within "awareness," differences are valued. Instead of trying to fix the student, the initial assumption is that the student has the capacity to succeed. The focus shifts to (a) guiding students to identify strengths associated with their various identities that can be used to help them succeed and (b) diagnosing what is wrong with the educational environment and working to fix the institution.

In the coming year, UMN Crookston will conduct a more comprehensive assessment of campus climate using the Student Experience in the Research University (SERU) inventory. This will provide us with valuable information to triangulate with IDI-based assessments and student success data. Additionally, we are making shifts within our student affairs division to place greater emphasis and physical and

mental health and wellness in ways that will intersect directly with our student success, equity, and belonging efforts.

Town-gown relationships between UMN Crookston and the Crookston community are generally positive, though there is always room for improvement. One can see this in local media, university involvement with the Chamber of Commerce and the Small Business Development Center, or collaborative efforts with local schools, to name a few. People sometimes note how the railroad tracks south of campus and on the north end of town separate the university from the community, but this reflects more of a desire for greater connection than of any problems between the communities. Anecdotally, it seems that students from greater Minnesota's rural communities connect more easily with the Crookston community than students who come from out of state or from the Twin Cities. This makes sense, though there are also a number of examples of students from the Twin Cities or out of state living, working, and interacting in Crookston. In terms of strategies to improve town-gown relationships, UMN is focusing on strengthening partnerships with regional businesses, increasing economic development collaborations, and developing pathway and other interactive partnerships with schools. Many students also work in the community or complete internships in the community. One final new strategy that UMN Crookston is promoting is community-engaged scholarship. These are experiences in which faculty engage in rigorous, high-quality scholarly endeavors in collaboration with businesses and community organizations. While these activities may not lead as quickly or directly to formal publications, the University of Minnesota's Office for Public Engagement now offers a peer-review process through which faculty can document the rigor of their work and how it has led to mutually desired outcomes for the purpose of tenure and promotion.

Campus: Duluth

Campus Climate Support Structure

Improving the campus climate at the University of Minnesota Duluth has been a signature area of focus and emphasis for Dr. Lendley C. Black since he became Chancellor in 2010. During his first year at UMN Duluth, he worked with campus climate leaders Susana Pelayo Woodward and Dr. Bilin Tsai to create a structure to support campus climate work at all levels of the institution.

The campus climate structure at UMN Duluth includes specific teams that work to create a campus culture that is welcoming and supportive to all who learn, work and visit the campus. The goal is a climate that incorporates social justice values of diversity, equity and inclusion in every aspect of the institution. Descriptions of the teams follows.

UMN Duluth has four long-standing Commissions. the Commission on Disabilities; the Commission on Equity, Race, and Ethnicity; the Commission for Women; and the LGBTQI Commission. The commissions are comprised of members representing academic and administrative faculty and staff, as well as students. Ms. Woodward and Dr. Tsai worked with Chancellor Black to replicate this grass roots model across every major division of UMN Duluth. In 2010-2011, "Unit Change Teams" were formed in every collegiate unit, in the four major administrative structures (Chancellor's Units, Academic Affairs, Finance and Operations, and Student Life), and in student groups (UMD Student Association, UMD Multicultural Center Student Leaders). Unit Change teams are charged with:

- Identifying and developing “promising practices” in efforts to create a welcoming and inclusive campus climate at a unit level (unit, department, collegiate unit) or to recommend promising practices to the Campus Change Team as appropriate.
- Recommending and/or implementing inclusive campus climate initiatives.
- Evaluating and sharing action priorities for each of the initiatives, review progress, evaluate reports and other indicators of program effectiveness.

The leaders of each Commission and Unit Change team comprise the membership of the Campus Climate Team (CCT), a group charged with fostering communication between and among the Commissions and Unit Change Team as well as, identifying opportunities for collaboration and synergy. The Campus Climate Leadership Team (CCLT) provides oversight for the campus climate structure and has responsibility for identifying resources, setting priorities, and implementing recommendations.

A recent example of the work of the structure is the creation and implementation of a Land Acknowledgement statement for UMN Duluth. Faculty and staff brought the idea of creating a UMD Land Acknowledgement statement to the CCT. The statement was developed by the Department of American Indian Studies and members of the CCT and endorsed by the Minnesota Indian Affairs Council. The statement was ultimately recommended to Chancellor Black by the CCLT. Chancellor Black approved UMD’s Land Acknowledgement statement this past summer.

More information about the accomplishments of the Unit Change Teams and Commissions may be found in their annual reports of the campus climate groups (see the UMD Campus Climate website: www.d.umn.edu/campus-climate).

Campus Climate Assessment

UMN Duluth has been engaged in a variety of campus climate assessment initiatives since 2010. Two major efforts are described in these docket materials. More information about the comprehensive assessment work done at UMN Duluth may be found at the website referenced above.

In the fall of 2015, UMN Duluth contracted with Rankin and Associates (R&A) to conduct a comprehensive campus climate assessment that included students, faculty, and staff. R&A presented the results to the campus in the fall of 2016.

All students, faculty and staff were invited to participate in the survey and the results indicated a 26% response rate. R&A presented “key findings” in the areas of strengths as well as areas of opportunity.

Areas of strength follow.

- High levels of comfort with the climate at UMN Duluth
- Positive attitudes about work-life issues for staff and administrator respondents
- Positive attitudes about faculty work for faculty respondents
- Positive attitudes about their academic experiences for student respondents

Areas of opportunity follow.

- Members of several constituent groups were differentially affected by exclusionary, intimidating, offensive, and/or hostile conduct (based on their gender identity, or ethnicity, or position status, or racial identity)

- Several constituent groups indicated they were less comfortable with the overall campus climate, workplace climate, and classroom climate (based on their gender identity or racial identity or sexual identity)
- Challenges with work-life issues (examples include hiring practices and the inability to complete assignments during work hours)
- Challenges with faculty work (examples include tenure and promotion issues, or research agendas, or pre-judged perceptions based on identity)

Following an analysis of the survey comments and an extensive series of campus discussions of the results with many constituents, the Campus Climate Leadership Team identified three action items/areas of focus: Make UMD More Diverse, Make UMD More Inclusive, and Work on Anti-Bullying and Civility.

Unit Change Teams, Commissions, and all administrative units were charged with developing action plans to address on or more areas of focus. The action plans included objectives, action steps, and strategies for measuring progress. Thirty-seven plans were created. Several examples follow (details for each plan are found on the campus climate website).

- The Kathryn A. Martin Library plan was to implement the Association of College and Research Library Diversity Standards. (Make UMD More Inclusive)
- The Division of Student Life plan was to implement new strategies to recruit a diverse workforce. (Make UMD More Diverse)
- The Division of Academic Affairs plan was to create a campaign to reduce barriers to reporting campus climate issues. (Work on Anti-Bullying and Civility)

Work on these plans continues, with progress reports planned for the spring 2020 semester..

A second major initiative to assess campus climate is found in tracking campus climate incidents. This work is done by another one of UMN Duluth's action teams, the Campus Climate Response Team (CCRT). The CCRT is tasked with designing responses to major campus climate incidents, and also with tracking campus climate incidents. The CCRT reviews the types and frequencies of campus climate incidents annually, and makes recommendations to the CCLT with regard to strategies to address trends identified.

Campus climate incidents have been tracked since 2012-2013 and these data are shared with the campus on the CCRT website (www.d.umn.edu/campus-climate/action-teams/response-team). The CCRT identified the following trends over the period of time incidents have been tracked.

- Reporting of incidents has more than doubled over this period of time. Fifty incidents were reported in 2012-2013 and 124 incidents were reported in 2018-2019. This growth may be related to several campaigns at UMN Duluth to encourage reporting.
- Reports of harassment have increased 185% since 2012-2013. Harassment reports comprised 40% of the overall number of reports in 2012-2013 and 45% of the overall number of reports in 2018-2019. Sexual harassment is the most frequently reported form of harassment. In 2012-

2013, sexual harassment comprised 20% of all harassment reports. In 2018-2019, this percentage grew to 61%.

- Reports of other forms of prohibited conduct (sexual assault, stalking) have also increased over the tracking time period. Overall, the number of reports have increased by 150%. The number of reports of sexual assault and stalking have increased by almost 300%.

The CCLT has adopted CCRT recommendations related to the trends identified above. A sampling of those recommendations follows.

- The CCRT recommended increasing resources available to the Women's Resource and Action Center (WRAC). UMN Duluth's budget compact submission last year included a request for a full-time position for WRAC.
- The CCRT (as well as other groups) recommended the creation of an Ombuds position at UMD to create an additional mechanism for addressing campus climate concerns. Chancellor Black is working on the creation of such a position.
- The CCRT has endorsed the Chancellor's Initiative to Prevent Sexual Misconduct.

The next major step for UMN Duluth in terms of campus climate assessment is to identify a follow up project for the R&A survey. Campus Climate Leaders Susana Pelayo Woodward and Dr. Paula Pedersen are leading this ongoing topic of discussion throughout the campus climate structure.

Campus: Morris

The University of Minnesota Morris campus has quantitative data concerning campus climate from two primary sources. The National Study of Student Engagement (NSSE) survey of first year and senior students has an optional "Inclusiveness and Engagement with Diversity" module which was administered to Morris students in spring 2017. A second survey, completed by students living in our residence halls each spring, contains questions about their experiences with residents different from themselves. In addition to these data, campus leadership pays close attention to climate through a variety of informal means. Data from both surveys are included as appendices to this document.

UMN Morris has a robust campus governance model that is inclusive of faculty, staff, and students who meet together in Campus Assembly to debate, vote on policy, and address issues of importance to the campus community. Campus Assembly last spring endorsed a vision for the Morris campus that elevates diversity and inclusion:

> The University of Minnesota Morris will be a national leader in collaborative and innovative 21st century liberal arts education. Grounded in our sense of history and place and our commitments to access and sustainability, we will integrate scholarly and creative work, community-building, and outreach into our rigorous academic programs. Our diverse community will inspire and equip students to connect their passions to meaningful futures.

Undergirding our vision are a set of eight aspirational statements that will guide us to achieve our vision. Among these is:

Create a democratic community committed to open communication where students, faculty, staff, and local community members from all backgrounds are empowered to contribute to the decisions, infrastructure, and liberal arts education on UMN Morris's campus.

This aspirational statement dedicates UMN Morris to building community capacity for respectful communication across differences, fundamental to any healthy campus climate.

Powered by our vision, enabled by our strategic visioning and planning process, and given Morris' strong sense of community, UMN Morris has recently undertaken several concrete steps to enhance positive climate on campus and build capacity for respectful dialog across differences.

Recent Campus Climate-related Initiatives:

- Reorganization of leadership structure to support campus climate initiatives. The director of Equity, Diversity, and Intercultural Programs, director of the Native American Student Success program and UMN Morris' chief diversity officer have been charged by Chancellor to develop a draft proactive plan to enhance our capacity to ensure an inclusive and respectful campus.
- Creation of Equity Diversity Advocates (EDA), a two-year pilot program created through campus shared governance to infuse and elevate equity and diversity into all governance activities.
- Creation of a Community Hour during which no classes are held, enabling and encouraging all constituent groups participation in campus governance activities, particularly Campus Assembly.
- Creation of a web portal to solicit suggestions from internal constituents, alumni, and friends in support of enhancing our capacity to communicate across difference. https://morris.umn.edu/message-regarding-campus-climate/build-community-respect
- Development of campus programming to support education around issues of First Amendment and respectful interactions. One example is the campus' plan to bring a PEN America workshop and dialog to campus in spring 2020. (PEN America held a two-day workshop on the Twin Cities campus last April exploring issues of the First Amendment, the UMN as a home for learning and diverse political and cultural identities, and efforts to foster greater inclusion at UMN TC.)
- Establishment of an annual fall Healing Ceremony, focused on learning, understanding, and healing regarding the Native American boarding school at Morris (1887-1909).

Relationships with the Morris community. UMN Morris students, faculty and staff interact with the community by serving on community boards, as volunteers for local non-profit organizations, through internships and service learning and the like, and the institution engages in a number of innovative joint use campus-community partnerships such as the Regional Fitness Center and Big Cat Stadium. Some examples of recent and positive town/gown interactions include:

- New Student Orientation planners work with the Morris Chamber of Commerce to host an annual Community Welcome Picnic at a city park, featuring interactions with local businesses. (Unfortunately, because of rain the picnic was held indoors on campus this year.) As a part of their training, student Orientation Group Leaders completed a community tour, including rides

on Morris transit, so that they are able to encourage students to engage with the local community and support local businesses.

- The UMN Morris Campus Activities Council, a student organization that provides cultural programming for the campus community, sponsors free access for students to the films screened at the Morris Theatre downtown on the first Friday of each month, rather than programming movies on campus. Recent movies have attracted 200 students and numerous community members. (Additionally, the city's theatre is run by a cooperative venture in which many University faculty and staff are key participants.)
- UMN Morris leadership is working with the Morris city manager and Stevens County economic development director to determine transportation alternatives in response to a private provider discontinuing the region's only MSP airport shuttle service.
- This fall's campus job fair for students was very successfully transformed into a part-time jobs fair, with both community and campus employers present to recruit student workers.
- Local high school students and their teacher attended the evening presentation on campus of UMN Morris's Distinguished Visiting Professor in the Liberal Arts, with subsequent arrangements between the visiting professor and the teacher for a visit to local high school English classes.
- Over half of the current local school board members work at UMN Morris.
- The local public library collaborates regularly with UMN Morris to hold book club conversations in conjunction with campus visitors and events. The public library, a local restaurant, and local churches also host campus music ensemble performances and other events in collaboration with the university (such as the Lazos meal in Hispanic Heritage Month at Faith Lutheran Church).
- UMN Morris Community Engagement coordinates a free monthly Community Meal, prepared and staffed by volunteers from campus and the community, drawing 200+ citizens of all ages from across Morris to share dinner together. A recently created college-community choral group, led by a faculty member, performed at a Community Meal this fall.
- The Morris Area Farmers Market has been revitalized through the Morris Healthy Eating partnership led by UMN Morris staff and students. With support from the MN Statewide Health Improvement Partnership (SHIP) the market has moved to the Morris public library square, added youth cooking opportunities, and increased community access to fresh local foods.
- UMN Morris is part of the Morris Model, a partnership to expand sustainability-related projects in the community, with a focus on clean energy, energy conservation, community resilience, cultural exchange, and celebration. The Morris Model connects UMN Morris students, staff, and faculty with community partners including the City of Morris, Stevens County, Stevens Community Medical Center, the Morris Area School District, and the UMN West Central Research and Outreach Center.

APPENDIX 1: UMN Morris 2017 NSSE Inclusiveness and Engagement with Diversity Results

UMN Morris seniors were significantly more likely than peers at other colleges to report that their institution:

- demonstrates a commitment to diversity
- creates an overall sense of community among students
- ensures that they are not stigmatized because of their identity
- takes allegations of discrimination or harassment seriously
- provides a supportive environment for students within many forms of diversity

	Class Level	UMN Morris Average	NSSE Cultural Diversity Average	Difference
During the current school year, how much has your *coursework* emphasized the following?				
Developing the skills necessary to work effectively with people from various backgrounds	FY	**2.4**	2.6	-.17
	SR	**2.7**	2.7	.02
Discussing issues of equity or privilege	FY	**2.6**	2.5	.06
	SR	**2.8**	2.5	.29
Sharing your own perspectives and experiences	FY	**2.7**	2.8	-.09
	SR	**2.9**	2.8	.11
Respecting the expression of diverse ideas	FY	**2.8**	2.8	.04
	SR	**2.9**	2.8	.11
How much does your institution emphasize the following?				
Demonstrating a commitment to diversity	FY	**3.1**	3.0	.12
	SR	**3.3**	2.9	.35
Creating an overall sense of community among students	FY	**3.0**	3.0	.03
	SR	**3.0**	2.8	.22
Taking allegations of discrimination or harassment seriously	FY	**3.2**	3.1	.11
	SR	**3.0**	2.9	.14
Ensuring that you are not stigmatized because of your identity (racial/ethnic identification, gender identity, sexual orientation, religious affiliation, etc.)	FY	**3.2**	3.0	.19
	SR	**3.1**	2.9	.24

How much does your institution provide a supportive environment for the following forms of diversity?				
Racial/ethnic identification	FY	**3.1**	3.1	.07
	SR	**3.1**	2.9	.24
Economic background	FY	**2.9**	2.8	.10
	SR	**2.8**	2.6	.16
Political affiliation	FY	**2.6**	2.6	-.01
	SR	**2.4**	2.5	-.03
Religious affiliation	FY	**2.7**	2.8	-.15
	SR	**2.7**	2.7	.04
Sexual orientation	FY	**3.5**	3.0	.52
	SR	**3.4**	2.8	.56
Disability status	FY	**2.9**	2.9	-.01
	SR	**2.9**	2.8	.12

Each statement was ranked on a scale ranging from 1 to 4, where 1 is "Very Little" and 4 is "Very Much"

APPENDIX 2: UMN Morris 2018-2019 ACUHO-I Educational Benchmarking Inc. Survey Results: Diverse Interactions

Every spring UMN Morris on-campus residents participate in the ACUHO-I Educational Benchmarking Inc. survey. As shown below, UMN Morris students report that their on-campus housing experience fosters more diverse interactions than the residential experiences of their peers at similar institutions.

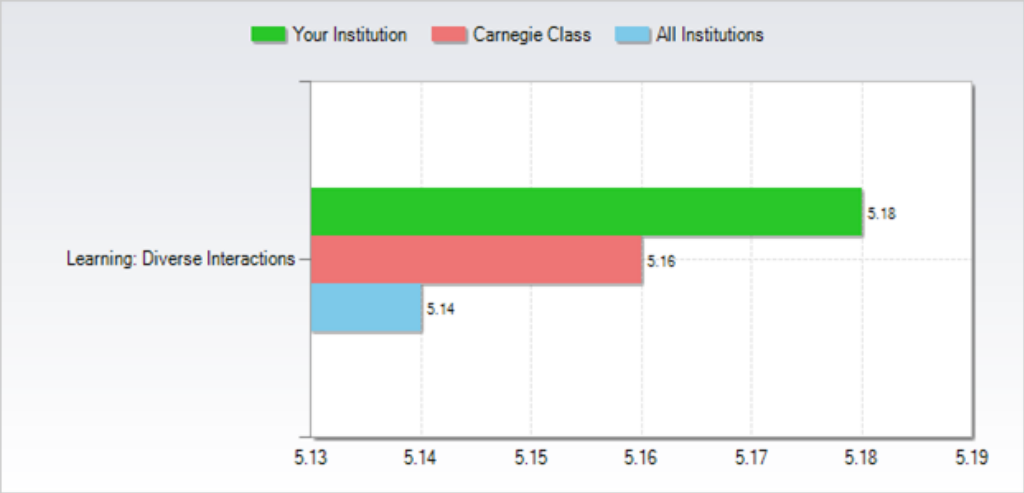
Spring 2018:

Q093. Diverse Interactions: To what degree has your on-campus housing experience helped you: Interact with residents who are different from you (i.e., race, gender, beliefs) **N = 471 Mean = 5.32 Std Dev = 1.52**

Q094. Diverse Interactions: To what degree has your on-campus housing experience helped you: Understand other residents by putting yourself in their place **N = 465 Mean = 5.06 Std Dev = 1.58**

Q095. Diverse Interactions: To what degree has your on-campus housing experience helped you: Benefit from the interactions with residents who are different from you **N = 463 Mean = 5.15 Std Dev = 1.61**

Overall Spring 2018:



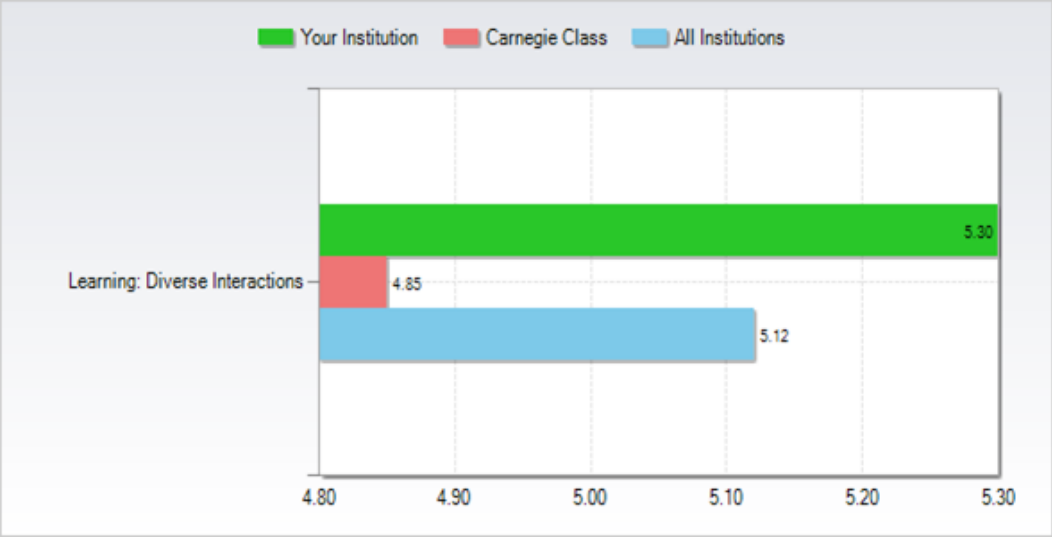
Spring 2019 responses:

Q093. Diverse Interactions: To what degree has your on-campus housing experience helped you: Interact with residents who are different from you (i.e., race, gender, beliefs) **N = 537 Mean = 5.38 Std Dev = 1.69**

Q094. Diverse Interactions: To what degree has your on-campus housing experience helped you: Understand other residents by putting yourself in their place **N = 525 Mean = 5.19 Std Dev = 1.62**

Q095. Diverse Interactions: To what degree has your on-campus housing experience helped you: Benefit from the interactions with residents who are different from you **N = 531 Mean = 5.35 Std Dev = 1.62**

Overall Spring 2019:



Scale: (1) Not at all; (2),(3),(4) Moderately; (5),(6),(7) Extremely

Campus: Rochester

At the University of Minnesota Rochester, the work of fostering a diverse, welcoming campus climate for all is ongoing, active and crucial and is reflected in our grounding values: diversity and inclusion; respect; human potential; evidence-based decision making; and community. With a diverse student body there is currently no achievement gap between underrepresented students and their peers at UMN Rochester. Though the high-impact practices are credited as the catalyst for this equity in educational attainment, such an outcome is also indicative of a positive campus climate that continues to be a priority. In our efforts, UMN Rochester has been especially attentive to on-going climate assessment, intercultural coaching for students, equity-minded professional development for faculty and staff, and opportunities for all to engage in meaningful dialogue about diversity and inclusion. We believe that our success in sustaining equitable educational outcomes is intimately connected to our success in creating a strong, supportive, and positive campus climate.

Charged by and reporting to the chancellor, the UMN Rochester Diversity and Inclusion Committee drives many endeavors. That committee created an institutionally-specific UMN Rochester *Campus Climate Survey* that integrated questions from UMN Twin Cities *Student Experiences in Research Universities* (SERU) survey, the University of Wisconsin La Crosse *Campus Climate Survey*, and additional questions developed by the committee. Administered in 2016 and 2018, the UMN Rochester *Campus Climate Survey* was designed to assess how welcomed, respected and appreciated faculty, staff and students perceive and experience the campus community. Participation rates were over 90% for faculty and staff and nearly 35% for students. Results highlight both our successes as well as the defining work ahead [see 2018 survey results HERE]. We expect to participate in the system-wide SERU survey in spring 2020.

Across both survey years, a majority of faculty, staff and student survey respondents affirmed that 1) a diverse campus improves the educational reputation and experiences of students; 2) UMN Rochester has a strong institutional foundation in relation to diversity and equity; and 3) they were comfortable with the campus climate though importantly underrepresented populations self-reported less comfort. Faculty, staff and students with underrepresented identities also more commonly felt deliberately excluded and were more likely to perceive that the campus is not placing enough emphasis on diversity and inclusion. Students felt excluded, not welcome, and discriminated against most by other students (rather than by faculty or staff), and that student-to-to student exclusion most commonly occurred in campus residential units and in the classroom. Some faculty, staff and students also reported experiencing exclusion and discrimination based on their gender identity and expression.

Although some students reported that conservative political views are not represented or respected on campus, the majority of faculty, staff and students believe the University provides an environment for the free and open expression of ideas, opinions and beliefs. Students also largely agreed that the curriculum provides an adequate opportunity to learn about local and global cultural diversity as well as diverse intellectual traditions and political perspectives. At the institutional leadership level, the

chancellor and other senior administrators were perceived by a very high percentage of the campus community as effective leaders in promoting diversity and equity on campus.

As future professionals in the healthcare sector, UMN Rochester graduates will need to work well with individuals from various backgrounds and adapt to their specific cultural needs. In order to position our graduates to be competitive in the increasingly complex cultural and political terrain of the 21st-century healthcare industry, the Rochester campus has made a defining investment in their intercultural learning and development. As part of undergraduate students' experience within the Bachelor of Science in Health Science (BSHS) program, students take the Intercultural Development Inventory (IDI) ® to assess their intercultural competence during their first, junior and senior years. On each occasion, all students in the BSHS program meet with a faculty and/or staff member who is a Qualified Administrator of the IDI. During these consultations, students discuss their IDI Profile Report as well as their intercultural experiences, growth and continued challenges. Faculty and staff also advise all students in developing an individualized Intercultural Development Plan (IDP). As part of their first-year experience, each entering class is also presented with their Group IDI Profile Report as a focus for individual reflection and community dialogue. UMN Rochester's intensive intercultural development work with students not only prepares them to lead, serve and collaborate with others from diverse backgrounds, but also fuels the types of empathy, cultural attentiveness, equity-mindedness and conversations across difference that characterize a positive and transformative campus climate.

This intercultural work is just one example of the sustained commitment the Rochester campus has made to enhance students' capacity to engage in respectful and civil conversation about hotly contested issues related to culture, race, gender, religion and politics. Efforts to cultivate an inclusive campus climate characterized by civil discourse are complicated by the divisions that characterize our country's current historical moment. UMN Rochester's monthly Diversity Dialogues are designed to create a space and process for students, faculty and staff to enhance their capacity to engage in courageous, civil and democratic conversations. They also aim to enhance the possibility of greater mutual understanding, compassion, empathy and reconciliation among members of our campus community. Put another way, UMR Diversity Dialogues are one of our critical incubators of a supportive, welcoming and positive campus climate.

These dialogues, along with our campus climate survey results, often highlight our institutional blind spots around equity and diversity and therefore provide us with a roadmap of some of the work ahead. The creation of a hate or bias incident reporting system was partially the result of ideas discussed during diversity dialogues and meetings of the Diversity and Inclusion Committee. The expansion of a senior leadership position to include responsibilities for advancing equity was also prompted by these on-going discussions of diversity and equity on campus. To sustain and improve the UMR campus climate, University leadership and the broader campus community will have to continue to be attentive to institutional context, structural diversity, as well as the lived experiences of students, faculty, and staff from historically underrepresented and marginalized backgrounds. The overall relationship with the broader community is positive, with ongoing connection to relevant community partners including the Rochester Diversity Council, Rochester Downtown Alliance and others. Internally, it is imperative that

UMN Rochester continues and expands efforts to recruit and retain diverse faculty, staff and students. The Rochester campus will also need to tap into system-wide resources to advocate for and develop initiatives to better support those who have underrepresented gender identities and expressions. And although diverse political perspectives tend to be more underrepresented than maligned, our campus community must continue to attend to supporting civil discourse among students of all political perspectives. If UMR can prove consistent across these elements and we continue to listen to our learners and employees, we will be able to continue to enhance student learning and development outcomes through the creation of a strong, supportive and positive campus climate.

Campus Climate: Crookston, Duluth, Morris, and Rochester Campuses

Board of Regents
Mission Fulfillment Committee
December 12, 2019

John L. Hoffman,
Vice Chancellor for Academic and Student Affairs
University of Minnesota Crookston

Sandra Olson-Loy,
Vice Chancellor for Student Affairs
University of Minnesota Morris

Andrew Williams
Vice Chancellor for Student Success, Engagement & Equity
University of Minnesota Rochester

Lisa Erwin,
Vice Chancellor for Student Life and Dean of Students
University of Minnesota Duluth

Michael Goh,
Vice President
Office for Equity and Diversity

University of Minnesota Crookston

Assessing Climate

1st Year Retention

- 72.6% - All students
- 83.2% - Greater MN
- 70.7% - 1st Generation
- 68.0% - Pell-eligible
- 55.4% - Students of color

IDI

Student Success Strategies

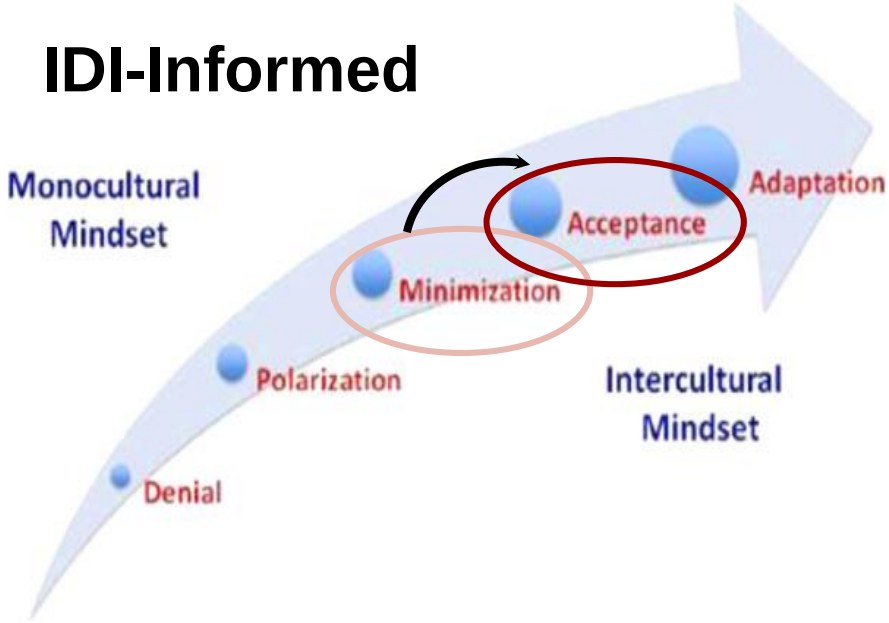
New Strategies

- 1st-Year Seminars
- Student Success Center

Next Steps

- Climate Assessment
- Health and Wellness Integration

IDI-Informed



Town-Gown Relationships

- Generally good; always could be better
- Anecdotally, students from Greater Minnesota connect better than students from out-of-state or from Metropolitan areas
- Strategies include university-community partnerships, employment and internships, and community-engaged scholarship initiatives

University of Minnesota Duluth

Campus Climate Structure

- Established in 2010-2011
- 16 Unit Change Teams and Commissions
- Chairs comprise the Campus Change Team
- Campus Climate Leadership Team

Assessing Campus Climate

- Campus Climate Survey 2015-2016
- Tracking of campus climate incident data

Relationship with Duluth Community

Strong Ties

- City, community and business relationships
- Duluth PD and UMDPD
- Neighborhood initiatives
- Podcast: It’s More Than That

University of Minnesota Morris

Assessing Climate

UMN Morris seniors report greater inclusiveness and engagement with diversity than their peers at other institutions. They were significantly more likely to report that their university:

- demonstrates a commitment to diversity
- creates an overall sense of community among students
- ensures that they are not stigmatized because of their identity
- takes allegations of discrimination or harassment seriously
- provides a supportive environment for students within many forms of diversity

National Survey of Student Engagement, Inclusiveness and Engagement with Diversity, Spring 2017

Residential life experiences foster UMN Morris students' Learning – Diverse Interactions

UMN Morris: 5.30
Carnegie Class: 4.85
All Institutions: 5.12

Scale:
1 = not at all; 7 = extremely

ACUHO-I Educational Benchmarking, Spring 2019

Campus Climate Initiatives: Engaging our Communities

Fall 2019 Campus Conversations:

a series of informal discussions on topics of interest to our community

September 4

UMN Morris as a leader in environmental, social, and economic sustainability

Accessibility: creating an inviting and usable environment

September 19

Supporting scholarly and creative activities

Morris's engagement with the region and state

October 9

UMN Morris mission: how we talk about it, where we talk about it, and how we live it

October 17

Talking across differences

Web Portal:

To Build a Community of Respect

At the University of Minnesota Morris, we are committed to building an inclusive and respectful campus. To that end, we want to hear from you.

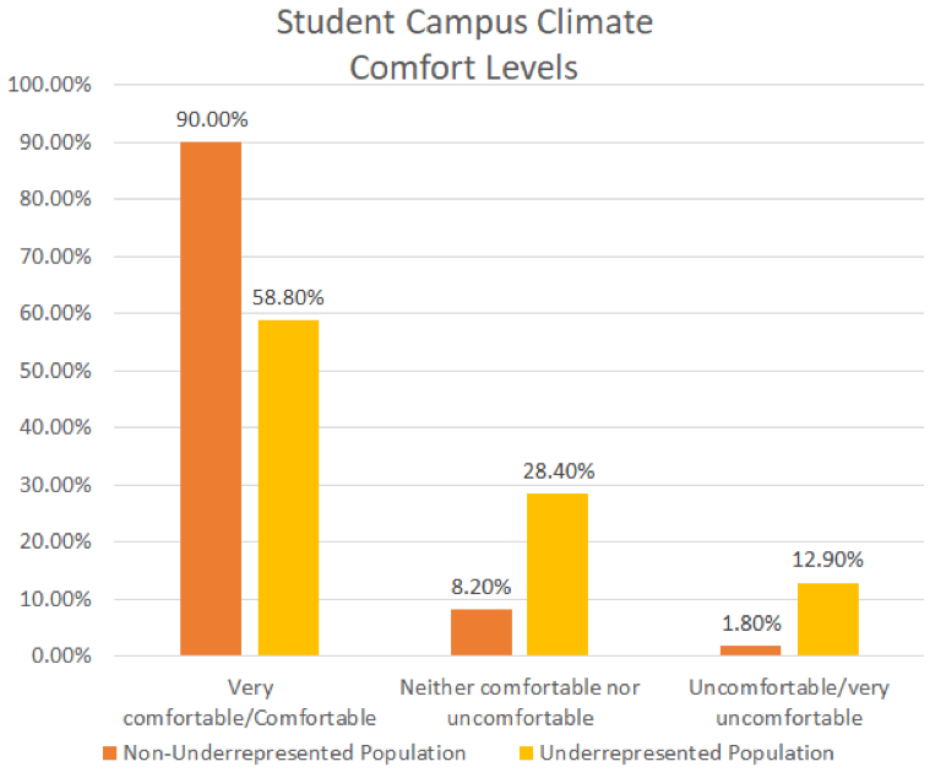
All members of our community have the right to live, learn, and work here safely. They also have the right to express themselves freely. What suggestions do you have for how we might best honor these rights simultaneously?

Morris Community Relationships

Morris Area Farmers Market • Community Meal • Kids Love Morris • Morris Model

Rochester

Campus Community Integration


Student Campus Climate
Comfort Levels
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
90.00%
58.80%
8.20%
28.40%
1.80%
12.90%
Very comfortable/Comfortable
Neither comfortable nor uncomfortable
Uncomfortable/very uncomfortable
Non-Underrepresented Population
Underrepresented Population

Climate Enhancing Work

Ongoing:

- Equity in educational attainment through high-impact practices (and related faculty research)
- Integration of campus in broader Rochester community
- Recruitment of diverse student body
- Intercultural Development Inventory process for all students
- Diversity Dialogues
- Active Diversity & Inclusion Committee
- Campus Climate Survey

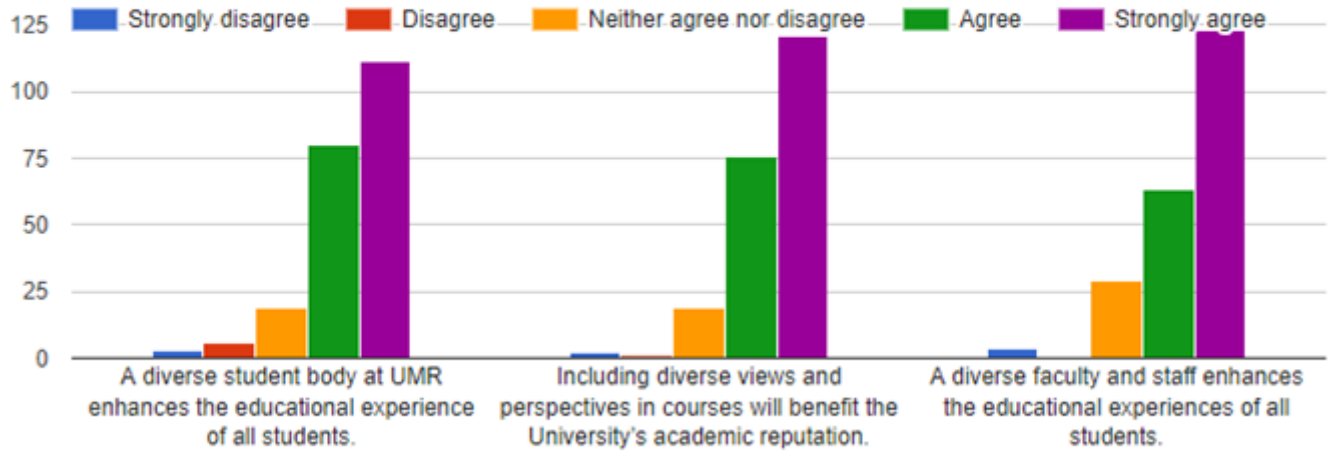
Future Focus:

- Continue and expand efforts to recruit and retain diverse faculty, staff and students.
- Advocate for and develop initiatives to better support those who have underrepresented gender identities and expressions.
- Enhance campus support of students from varied political beliefs, supporting and modeling civil discourse.
- Continue and deepen professional development for faculty and staff.
- Participate in SERU Survey.

University of Minnesota Rochester

Student Responses (2018)

Please use the following categories to indicate your agreement or disagreement with the following statements.



Climate Enhancing Work

Ongoing:

- Equity in educational attainment through high-impact practices (and related faculty research)
- Integration of campus in broader Rochester community
- Recruitment of diverse student body
- Intercultural Development Inventory process for all students
- Diversity Dialogues
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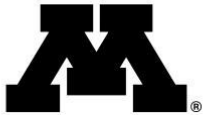

UNIVERSITY OF MINNESOTA

Driven to Discover℠

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UMNews

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BOARD OF REGENTS
DOCKET ITEM SUMMARY

Mission Fulfillment **December 12, 2019**

AGENDA ITEM: Extension and 4-H: Undergraduate Enrollment Pipelines

☐ **Review** ☐ **Review + Action** ☐ **Action** ☒ **Discussion**

☐ *This is a report required by Board policy.*

PRESENTERS: Beverly Durgan, Dean, University Extension
Madison Muir, Undergraduate Student, College of Food, Agricultural and Natural Resource Sciences and 4-H Alumna

PURPOSE & KEY POINTS

The purpose of this item is discussion of Extension and 4-H programming, including current and prospective undergraduate enrollment pipelines within those programs. The discussion will include:

- An introduction to Extension and youth programs.
- An overview of campus immersion programs.
- An overview of STEM programming.
- A summary of school success programs.
- A description of volunteers working with young people.
- Consideration of challenges and opportunities.

UNIVERSITY OF MINNESOTA EXTENSION:

Undergraduate enrollment pipelines

University of Minnesota Extension (Extension) is the major outreach arm of the University and a significant contributor to the University's land-grant mission of research, education and outreach. Extension has offices in every county in the state.

Extension's research and educational programming is concentrated in four areas: agriculture/food/natural resources; community vitality; family development; and youth development/4-H. Extension programs are distributed across Minnesota through regional and county offices. About two-thirds of Extension's faculty and staff live and work outside the seven county metro area.

That integration with local communities provides unique opportunities for Extension to represent the University of Minnesota and to support recruitment and admissions at all five system campuses.

Minnesota 4-H, the state's largest youth development organization with approximately 66,000 members, is the most prominent example of this work. 4-H is an out-of-school, hands-on learning program for people age 5-19 in which participants choose and complete projects from a range of subjects that include science, photography, agriculture, healthy living or civic engagement.

4-H membership results in young people who are prepared for college; national research shows that 4-H participants attend school more consistently and score significantly higher on standardized tests of math and reading. In Minnesota, high school graduates who belong to 4-H are more likely to attend college than their non-4-H peers.

In addition to 4-H, Extension encourages young people from across Minnesota to pursue higher education through a number of programs that involve faculty, staff and volunteers. For example, Extension recently was awarded a 5-year grant from the National Institute of Food and Agriculture's Children, Youth and Families At Risk (CYFAR) program. The $640,000 grant will boost efforts already underway to help Somali-American young people and their families in the Twin Cities and Moorhead to create pathways toward college and careers.

The following are a few of the programs that Extension delivers throughout the state that address the student pipeline issue.

CAMPUS IMMERSION EXPERIENCES:

4-Hers campus immersion experiences include a visit and sometimes stay for several days on college campuses across Minnesota and at the University's Twin Cities campus. These programs often are directed at young people who would be first generation college

students. These campus immersion experiences are designed to help participants develop the mindset and personal leadership skills needed to pursue higher education and careers. When young people are on campus they learn about student life, explore academic interests, identify the steps toward college readiness, and meet faculty and students in various fields. In 2019, 248 young people have taken part in 4-H programs that immersed them in the University college environment. These experiences took place on U of M campuses in Morris, Rochester and St. Paul.

STEM PROGRAMMING:

4-Hers have multiple opportunities to explore science, technology, engineering and math college and career pathways, including:

- The Science of Agriculture program, which began in 2015 and was the first of its kind in the nation, provides a hands-on learning experience that inspires the next generation of agriculture leaders in Minnesota. Teams of sixth- through 12th-graders work with volunteer coaches and mentors to create projects and build solutions to agricultural issues in their communities. Teams present their ideas to a panel of industry expert judges at a state competition. Each member of the top three teams receives a scholarship ranging from $400 to $1,000 to use at the university, college or trade school of their choice.
- 4-H STEM clubs throughout Minnesota allow young people to learn about engineering, robotics, agriculture, environmental and veterinary science. Participants are encouraged to imagine their futures in higher education and to set and achieve educational goals. One highly popular partnership links 4-H with Ka Joog, a Somali-American youth-serving organization that annually engages more than 2,500 young people in the Twin Cities and Moorhead area.
- For more than 20 years, fourth- through eighth-graders have participated in the White Earth Indian Reservation Summer Academy of Math and Science, a partnership that began when the White Earth Band of Ojibwe challenged the University to help engage struggling students in math and science. Today, this unique program uses American Indian culture and heritage as a vehicle for studying math, science, and engineering. In 2019, over 40 young people from the reservation and nearby communities participated in hands-on STEM activities.
- 4-H agronomy programs have been updated and expanded in 2019, in collaboration with the Minnesota Corn Growers Association and other agricultural stakeholders. The program now includes a college exploration day at Ridgewater College, agricultural tours and team competitions. These changes were made in response to workforce needs, especially in Greater Minnesota, identified by the stakeholders.

Extension and Minnesota 4-H also encourage members to enroll in higher education programs through scholarships funded through private philanthropy.

SCHOOL SUCCESS PROGRAMS

Extension's "Open Doors with Higher Education" program, or *Abriendo puertas con educación superior*, helps immigrant Latino parents and caregivers make informed decisions about post-secondary education in a community setting using the Spanish language. After taking the class, parents are more knowledgeable about: financial aid, college entrance exams, college application, ways to finance college, state and federal financial aid qualification, investments that finance college, differences in length of programs and majors, and loans including interest. Parents feel they are more effective in finding college prep resources, volunteer/internship opportunities, and more conversations with children on money management and financing college.

Another Extension program, "Education: Our Best Legacy," helps immigrant families successfully navigate the Minnesota public school system. It also aims to strengthen the interaction and partnerships between parents and children, and parents and schools; to increase the number of students of graduating from high school and continuing on to higher education. The program has been piloted in Columbia Heights, the Triton school district in Dodge County and in Worthington. It is currently offered in English and Spanish and is being adapted into the Hmong language.

Participation in these and related school success programs more than doubled between 2017 and 2018, to 1,629 participants.

VOLUNTEER CONNECTIONS

A key to Extension's integration in Minnesota communities is its network of 35,000 volunteers. One of the largest volunteer programs, Master Gardeners, offers statewide "junior" programming to engage young people in horticultural science and to introduce them to Extension and the University. Junior Master Gardeners take part in hands-on experiences that provide gardening skills along with inspiration toward service learning and critical thinking skills.

Master Gardeners and Extension's horticulture program team also have a significant presence in Minnesota schools through schoolyard gardens and other youth-focused activities that introduce young people to the University and Extension. In 2018, more than 48,000 participants took part in these activities.

INTERNATIONAL PARTNERSHIPS

Extension has had a relationship with Kisii University in Kenya since 2014. Several Kisii students have been MAST International interns studying and working in laboratories on campus, and one recently was admitted to the Humphrey School. Campus visits have been exchanged between Extension faculty and staff and Kisii faculty and staff. This relationship is expected to continue growing.

CHALLENGES AND OPPORTUNITIES

Awareness: This fall, 117 4-H members started their freshman year at a University of Minnesota campus. Statewide, over 73 percent of 4-Hers enroll in college the fall after leaving high school, but only 12 percent are choosing University of Minnesota system campuses. One factor may be a lack of awareness about the University's campuses in Greater Minnesota as an alternative to the Twin Cities campus. Extension has to date not had a formal relationship with University admissions recruiting offices across the system, but we are in the early stages of exploring such a relationship.

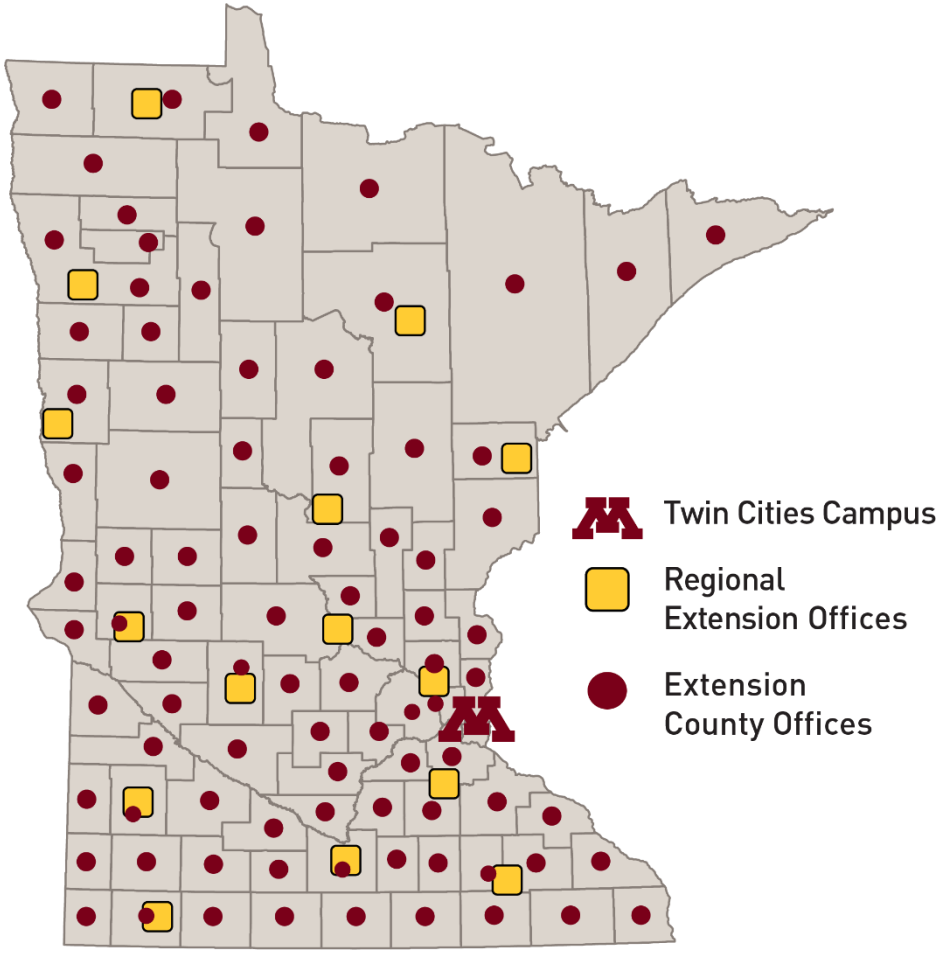
Another issue has historically been the University's enrollment prerequisites and public perceptions about the difficulty of being admitted. As a University, we need to find ways to talk to prospective students early in the recruitment and admissions process about the steps they need to take for admission and enrollment.

Welcoming campus: On-campus visits could be more accommodating. For example, when Bailey Hall is closed during the summer, 4-H immersion programs cannot provide overnight visits for students who might be interested in colleges on the St. Paul campus. Likewise, traditional campus tours include very little information about agricultural and environmental science majors or careers, which might be of interest to this audience of prospective students.

Collaborations: Extension's new strategic plan and the proposed University systemwide strategic plan emphasize collaborations across the state and across academic disciplines and boundaries. Implementation of those plans also could provide opportunities for strengthening the relationships between Extension and undergraduate programs at system campuses during students' time on campus, such as through internships or assistantships.

First Generation: Like the University as a whole, Minnesota 4-H is making a concerted, strategic effort to expand and include young people from new and more diverse audiences. Last year, 6,640 new members joined 4-H, 54 percent of them as the first in their families. Those efforts could dovetail with the first-generation recruitment work happening across the University to help open new channels for student enrollment and success.

Extension in Minnesota



Minnesota 4-H and higher education

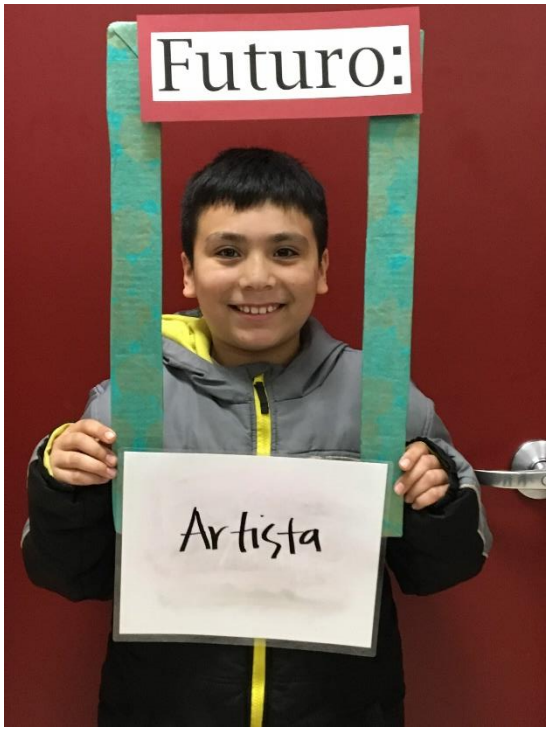
- More likely to pursue higher education
- 70% attend 4-year institutions

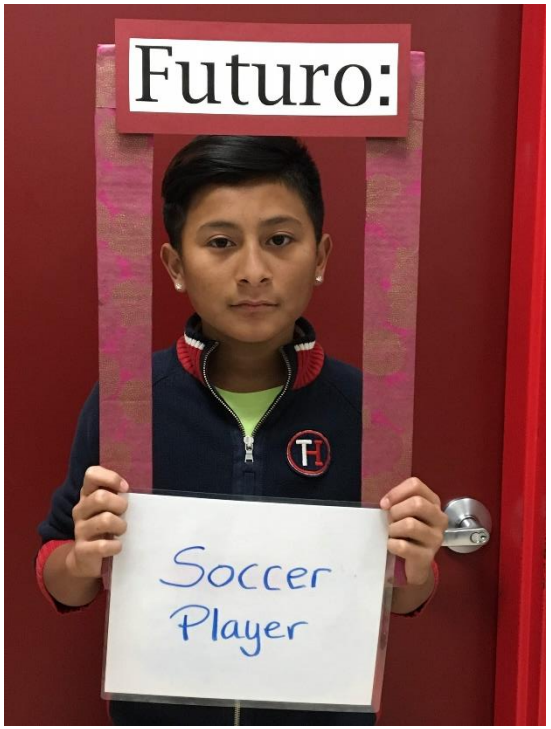
Immersed in the University

STEM projects inspire learning

Science in traditional culture

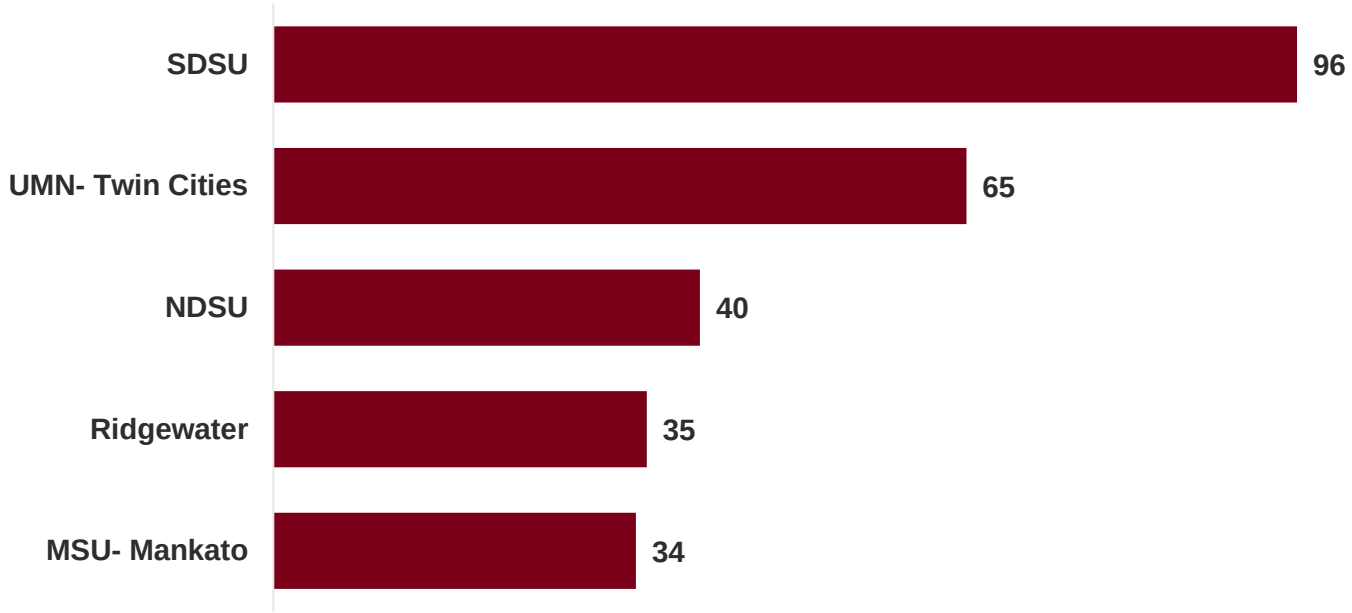
Engaging families in the future



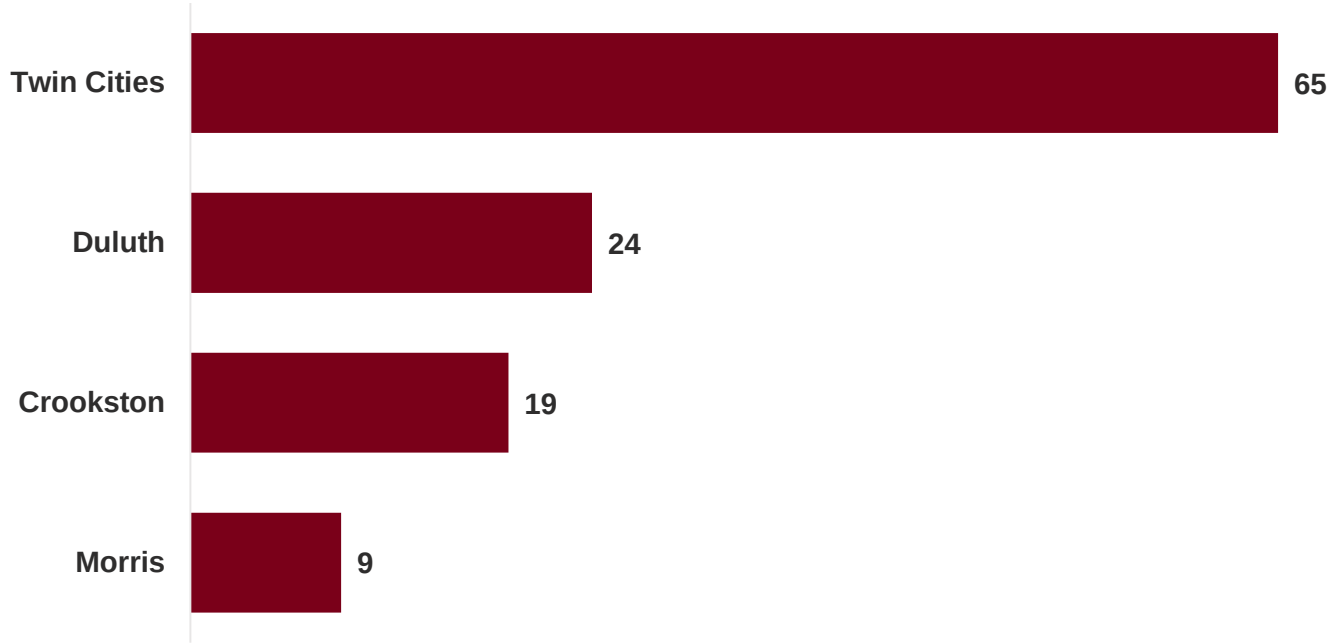


Volunteers amplify U connections

4-H alumni college choices



U of M 2019 campus enrollment



Challenges and Opportunities

- Great awareness of opportunities at UMN campuses

  73% of 4-Hers enroll in post-secondary education.

  Only 12% at the U.
- University admissions process
- Welcoming Campus
- Greater collaborations
- First Generation Students

BOARD OF REGENTS
DOCKET ITEM SUMMARY

Mission Fulfillment **December 12, 2019**

AGENDA ITEM: Annual Report on the Status of University Research & Commercialization of Technology

☐ **Review**	☐ **Review + Action**	☐ **Action**	☒ **Discussion**

☒ *This is a report required by Board policy.*

PRESENTERS: Christopher J. Cramer, Vice President for Research

PURPOSE & KEY POINTS

The purpose of this item is delivery and discussion of the Annual Report on the Status of University Research & Commercialization of Technology.

The annual report summarizes the University's research outcomes for the past fiscal year, documenting the trends in research productivity, scholarship and commercialization of intellectual property as well as benchmarking the University's performance and ranking among its peers. In addition, this year's report includes progress on a broad set of strategic priorities and directions aligned with the Board's 2019-20 priority to "Develop strategies to grow the University's impact as a top 10 research institution while further incentivizing and promoting the impact of research that addresses the challenges and opportunities facing Minnesota."

The discussion will include a briefing on the health of the University's research and technology commercialization programs, including:

- University research statistics and outcomes.
- National and global analysis.
- Technology commercialization and economic innovation.
- Research incentivization and MNtersections.
- Research strategic directions for the next five years.

BACKGROUND INFORMATION

The following Board policies require the president or delegate to provide an annual report on the status of University research and commercialization of intellectual property: *Commercialization of Intellectual Property Rights* and *Submitting and Accepting Sponsored Projects*.

2019

Annual Report on the Status of University Research and Commercialization of Intellectual Property

Christopher J. Cramer
Vice President for Research
12/12/2019

Each year the Vice President for Research provides the Annual Report on the Status of University Research and Commercialization of Intellectual Property for the Board of Regents, summarizing the University of Minnesota's research metrics for the past fiscal year, documenting the trends in research productivity, scholarship, and commercialization of intellectual property as well as benchmarking the University's performance and ranking among its peer group. In addition, the Vice President reports progress on a broad set of strategic priorities and national trends.

The FY2019 annual report includes:

Message from the Vice President for Research
Christopher J. Cramer

The University of Minnesota continues steadily to grow its research activities, and continues also to rank in the top 10 of public research institutions (as measured by the US National Science Foundation based on annual research expenditures). The innovative work being undertaken by our faculty, staff, and students is making a difference to Minnesotans, and to the world, as we expand knowledge in the arts, humanities, sciences, engineering, medicine, agriculture, law, business—a list too extensive to enumerate in totality, but a tribute to the breadth and the boldness of our spirit of inquiry. As Tripp Umbach noted in its March 2018 analysis, our research activities also have an *economic impact*; they delivered $1.2 billion in FY17, and given research growth rates of more than 7% per year since then, we may estimate that number is roughly $1.4 billion today. University research continues to be an engine that drives economic growth in every county.

As the only Carnegie-classification R1 Doctoral University in the state, the University of Minnesota is known for its commitment to research, public service, and teaching. Any focus on the research mission must also recognize that *each* part of the overall mission is intertwined with and reinforced by the others. Our adherence to our Land-Grant heritage means that we leverage our knowledge gains for the public good and that we work cooperatively with communities to understand and meet their needs. Critically, we also understand and emphasize the importance of *education* in conjunction with research. At the University of Minnesota, research *is* teaching—we embed discovery in our curriculum! This leverages the energy and diversity of our students for our research endeavor and results in innovation and discovery moving in new and exciting directions.

Considering a few specifics that help to highlight some of the University's signature strengths, funding for the Medical School rose a remarkable 41% in FY19 compared to FY18, with 38 awards in excess of $1M received to address Alzheimer's disease, cancer, addiction, and other critical healthcare needs. In the natural sciences, the Center for Sustainable Polymers, a National Science Foundation Center for Chemical Innovation, was renewed for a second 5-year term with an award of $20M over that time period. In the humanities, the Institute for Advanced Studies received over $1M from the Andrew W. Mellon Foundation for its Environmental Stewardship, Place, and Community Initiative, which will integrate Indigenous epistemologies and research methods into efforts to address critical environmental challenges facing local and global communities. Finally, the University of Minnesota Duluth received over $1M from the US Environmental Protection Agency to monitor phytoplankton levels in the Great Lakes and understand the influence of different factors thereupon. These are just a *few* stars in the constellation of research achievements over the last fiscal year.

As we look forward, certain recent developments are likely to accelerate progress on key University research goals, In particular, the recently finalized agreement between the University and the Fairview Health System bodes well for increased research activity involving human health

and clinical trials. On other fronts, however, challenges are emerging, particularly with respect to maintaining a state-of-the-art research infrastructure, which includes capital facilities, research instrumentation, and enabling enterprise hardware and software systems. Internal investment must accompany external support in this area, but if the reduced discretionary funding available in recent budgets persists, there is the potential that our present capabilities will fail to keep pace with competitors. Another area of concern is the degree to which ballooning budget deficits may impact future federal funding for research. As *all* federal discretionary spending comes under pressure owing to this situation, the University will need to remain aggressive in pursuing research support from a diversity of sources, including especially private foundations and business and industry. Funding from the latter sector grew by 25% in FY19, accounting for $80+M of awards, and the Office of the Vice President for Research has made continued growth along these lines a top strategic priority.

Considering the totality of corporate engagement and economic innovation, the University enjoyed significant success in FY19, including launching a record number (19) of start-up companies, fostered in part through the completion of the Discovery Launchpad incubation facility. Another record-breaking accomplishment was the signing of 103 new Minnesota Innovation Partnership (MN-IP) research agreements; such agreements allow companies to fund research having up-front, well-defined procedures for handling possible developments of intellectual property. In FY19, there were 77 different companies having at least one MN-IP agreement in place, and that, too, is a record number.

The Office of the Vice President for Research is privileged to partner with University researchers as they pursue excellence in discovery with an extraordinary commitment to research ethics. The next year will see our continued dedication to this effort, together with the completion of our commitments to the systemwide strategic plan.

Research Statistics: Fiscal Year 2019

Analysis of Research Awards

University of Minnesota faculty and staff competed successfully for **$863 million** in externally sponsored research awards in FY2019, **up 8.8% from FY2018**. This $70 million increase follows a sustained pattern of average growth since FY2012, and this year's total is a record level of awards in current dollars for the University. The average total amount received per award also increased from $157,700 in FY2018 to $164,100 per award in FY2019.

The University receives 62% of its research funding from federal sources and the remaining 38% from a variety of nonfederal sources. Specifically, in FY2019 the University received **$538 million from federal sources,** up $43 million (8.8%) from the previous year, and **$325 million from nonfederal sources,** up $26 million or 8.9% (Table 1).

Table 1: Awards by Major Source (FY2013-2019)

	Federal	Business & Industry	State & Local	Other Private	TOTAL
2013	$476.0	$47.6	$53.1	$116.8	**$693.4**
2014	$490.6	$55.2	$64.6	$130.1	**$740.6**
2015	$463.3	$78.0	$79.3	$133.0	**$753.6**
2016	$466.4	$80.8	$90.9	$149.9	**$788.1**
2017	$439.0	$83.9	$76.4	$145.3	**$744.5**
2018	$494.6	$64.1	$90.3	$144.1	**$793.2**
2019	$537.8	$80.4	$79.4	$165.4	**$863.0**

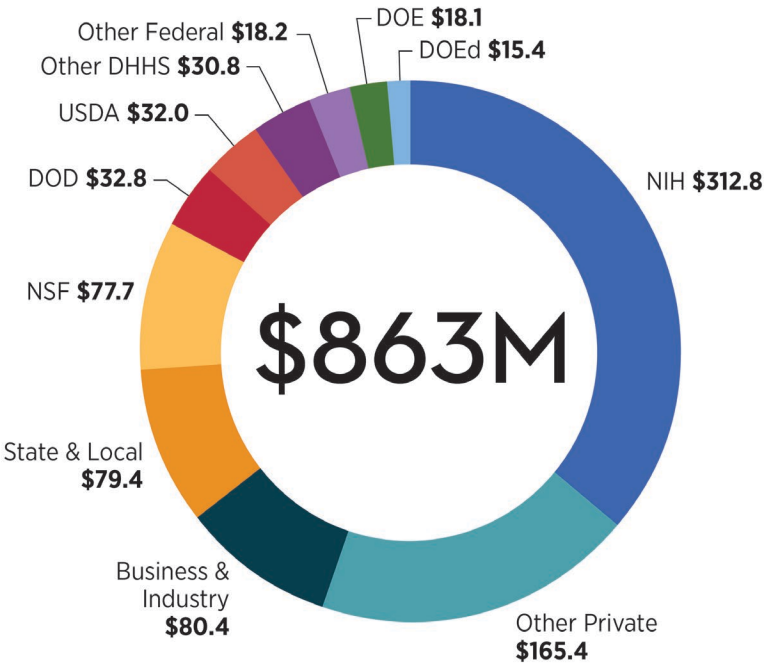
Dollar amounts represented in millions
Office of the Vice President for Research Data Services

Research awards from the National Institutes of Health (NIH), the largest single federal funding source within the University's research portfolio, totaled $312.8 million (Figure 1). This amount is an increase of $47 million (17.8%) over the previous year. While the timing and size of major NIH awards shows variation from year to year, which can affect the University's individual fiscal-year totals when significant numbers of high-dollar awards are provided in June as opposed to July, the overall trend over several years is not sensitive to such uncertainty. Considering a ten-year timeline from FY2009 to FY2019, NIH research awards have increased from $243.4 million to $312.8 million.

The National Science Foundation (NSF) is the second largest federal sponsor of University research and University researchers competed successfully for $77.7 million in FY2019, a $3 million (3.5%) decrease compared to the previous year. The total number of awards received from NSF decreased by 14% in FY2019 compared to FY2018. Considering a ten-year timeline, NSF awards to the University of Minnesota have increased from $59.7 million in FY2009 to $77.7 million in FY2019.

The Other Federal category includes Department of Defense ($32.1 million), US Dept. of Agriculture ($31.3 million), and other Department of Health and Human Services agencies ($30.8 million). Department of Energy ($17.7 million), Department of Education ($15.1 million), and many other smaller agencies.

Figure 1: Awards by Source (FY2019)



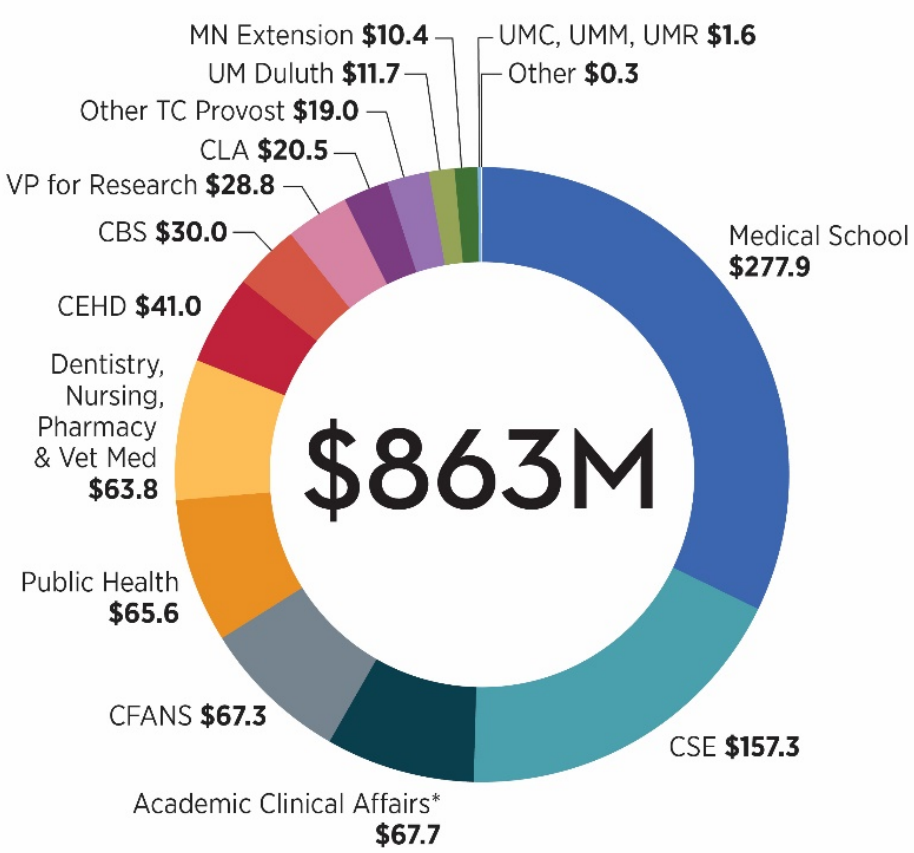
Dollar amounts represented in millions
Office of the Vice President for Research Data Services

Business and industry (B&I) funding was up $16 million (25.4%) in FY2019, increasing to $80.4 million from $64.1 million last year. FY2019 B&I funding was near the high end of fluctuating funding levels since 2013 (see Table 1). The total number of B&I awards received by the University also increased 8.1% 1,631 this year compared with 1,509 in FY2018. Considering the ten-year timeline, B&I awards to the University of Minnesota have increased from $31.9 million in FY2009 to $77.7 million in FY2019.

State of Minnesota research funding granted to the University decreased this year by 12.1% to $79.4 million, reflecting the State's historical pattern of granting more award funding in the first year (FY2018) of its biennial budget cycle than the second (FY2019). The awards received this year were distributed across broad areas of research, including biotechnology and medical genomics, regenerative medicine, invasive species, and nutrition. The state's other large research investment, MnDRIVE, is accounted for separately and discussed later in this report.

Figure 2 illustrates how the University's $863 million of externally sponsored research funding is distributed within the University by college and campus. This year, those colleges with the largest annual percentage increases in research funding include: College of Food, Agriculture, and Natural Sciences (CFANS), up $4.4 million (7.0%), College of Science and Engineering (CSE), up $13.8 million (9.6%), and the Medical School, up $80.8 million (41.0%). Additional analysis of the large gain in Medical School funding is included below in the year-to-year trends section.

Figure 2: Awards by College & Campus (FY2019)



Dollar amounts represented in millions
Office of the Vice President for Research Data Services
**The Office of Academic and Clinical Affairs is a new office created by the restructuring of the Academic Health Center that includes the Clinical and Translational Science Institute (CTSI) and the Masonic Cancer Center.*

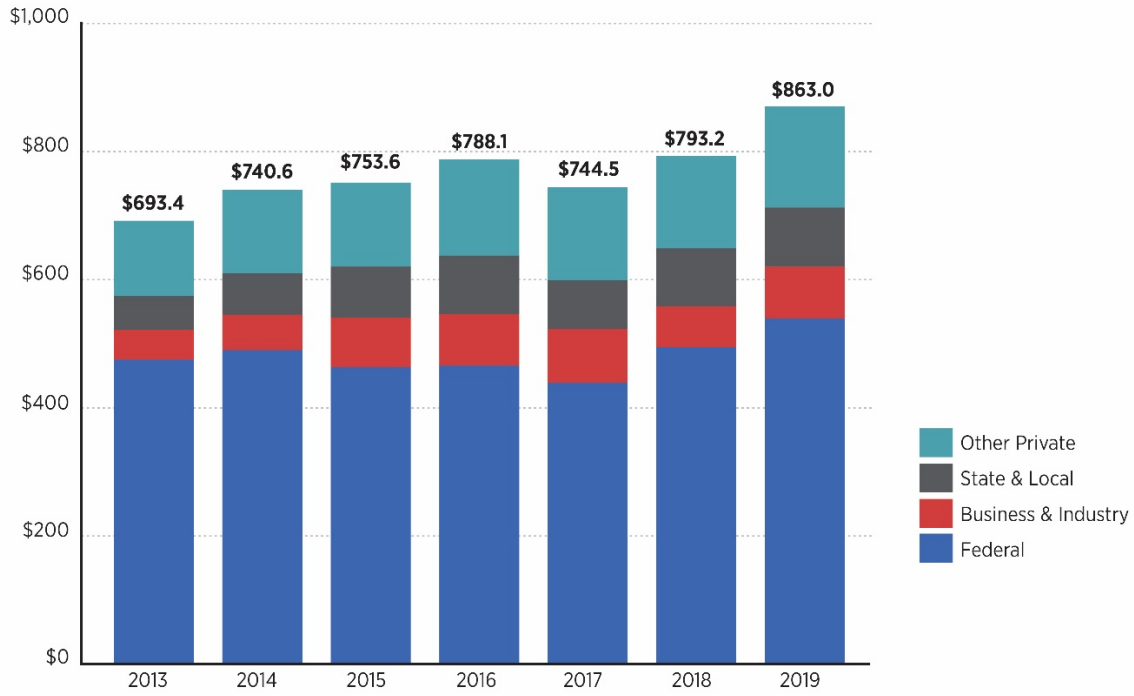
Year-to-Year Trends

Figure 3 and Table 1 below summarize the year-to-year distribution trend of the University's externally sponsored research awards for the years FY2013 to FY2019. As is common with award funding, there is considerable fluctuation that can occur between years caused by many factors, but most commonly delays in federal funding cycle distributions and large awards that fund multiple years. **Over the seven year period, the University has seen increases in all categories of grant sponsors.**

Federal funding was up considerably in FY2019 and when compared to past years, this year is the highest recorded annual federal funding award total by the University, with the Medical School seeing the largest increase in federal funding. Underscoring the record funding increase was an increased number of larger dollar awards received by the University and the Medical School in particular.

Factors that may have led to the Medical School's dramatic increase in awards funding included increased state support for the Medical School, new leadership directions at the school, increased attention from University leadership, a restructured Academic Health Center, and perhaps even in preparation of a renewed partnership with Fairview Health.

Figure 3: Awards by Major Source (FY2013-2019)



Dollar amounts represented in millions
Office of the Vice President for Research Data Services

National and Global Analysis: R&D Peer Comparison

Analysis of Research Expenditures

According to the most recent 2018 National Science Foundation Higher Education Research and Development (NSF HERD) Survey, the University maintained its top 10 status among public research universities, posting $955 million in research expenditures in FY2018 (Table 2), a 3% increase over FY2017.

Table 2: Top 20 US Public Research Universities

	NSF / HERD 2018		CMUP 2018	ARWU (Shanghai) 2019		
	Public	Expenditures	Public	World	US	US Public
Michigan	1	$1,600,869	9 of 9	20	16	5
UC San Francisco*	2	$1,595,732	5 of 8	20	16	5
Washington	3	$1,413,902	8 of 9	14	12	3
UCLA	4	$1,318,110	9 of 9	11	9	2
UC San Diego	5	$1,265,196	9 of 9	18	15	4
Wisconsin	6	$1,205,518	9 of 9	27	19	7
North Carolina	7	$1,136,158	9 of 9	33	23	8
Pittsburgh	8	$1,006,513	6 of 9	89	39	20
MINNESOTA – TWIN CITIES	**9**	**$954,683**	**9 of 9**	**41**	**27**	**11**
Univ Texas M.D. Anderson Cancer Ctr.*	10	$929,710	2 of 8	68	34	17
Texas A&M	11	$922,178	7 of 9	151-200	59-66	25+
Penn State	12	$908,708	6 of 9	98	44	23
Georgia Tech	13	$891,728	7 of 9	101-150	46-58	25+
Ohio State	14	$875,014	9 of 9	100	45	24
Florida	15	$865,093	8 of 9	95	41	22
UC Berkeley	16	$796,505	9 of 9	5	4	1
UC Davis	17	$788,832	5 of 9	90	40	21
Michigan State	18	$715,290	6 of 9	101-150	46-58	25+
Rutgers	19	$706,282	5 of 9	101-150	46-58	25+
Arizona	20	$687,066	5 of 9	101-150	46-58	25+

Dollar amounts represented in thousands
National Science Foundation's HERD Survey

The NSF HERD survey is the primary source of comparative information on R&D expenditures at US colleges and universities. It is completed by over 900 universities and colleges every year, producing the most accurate statistics on US higher education R&D spending. Because of survey reporting requirements, the University's $955 million reported in Table 2 represents research expenditures only for the Twin Cities campus. When all U of M campuses are reported together, total R&D expenditures systemwide are $982 million.

NSF's HERD data make clear that the University remains among an elite group of US public research universities. While there is no single indicator or composite number that accurately represents the totality of research impact at an individual institution, the HERD survey data does provide a credible and nationally accepted basis for comparison. The University of Minnesota is among the top 2% of colleges and universities reporting in the NSF HERD survey.

In addition, Table 2 also includes two other widely accepted and cited ranking systems, that of the Center for Measuring University Performance (CMUP) and that of the Academic Ranking of World Universities (ARWU). These systems rely on a number of indicators that serve as a proxy for accomplishments and strengths relative to the best performing research institutions in the country and the world, respectively. Both of these additional measures rank the University as highly competitive.

Technology Commercialization and Economic Innovation

As a comprehensive Land Grant research university, the University of Minnesota is committed to facilitating and accelerating the transfer of knowledge into the world where it can have the most impact and do the most good.

University of Minnesota Technology Commercialization (Tech Comm) facilitates the transfer of University research to licensee companies for the development of new products and services that benefit the public good, foster economic growth, and generate revenue to support the University's mission. Tech Comm collaborates with UMN faculty to protect and patent their intellectual property, and through its Venture Center, provides a range of support services for entrepreneurial researchers interested in forming startup companies. Tech Comm's work builds positive relationships with the private sector, deepening the University's public impact and channeling entrepreneurialism into academia.

Highlights

- **Launched 19 startup companies**, a record number
- **Five UMN startups were acquired or went public**, with a total of eight exits since July 2017
- **Officially opened Discovery Launchpad incubator** and graduated eight startup companies

- **Honored 455 UMN researchers** at a biennial Inventor Recognition Event
- **Ranked 20th worldwide** for the number of US patents granted to a university in 2018 by the National Academy of Inventors
- Introduced a **new workshop series, Industry-Research Partnerships,** for researchers interested in collaborating with industry on sponsored projects
- Tech Comm and Sponsored Projects Administration executed **103 MN-IP agreements,** a record number and a 20% increase over FY2018
- Partnered with the US Department of Health and Human Services to host **HHS Startup Day for Minnesota**

Table 3: Technology Commercialization Data (FY2015-2019)

	2015	2016	2017	2018	2019
LICENSES & REVENUE					
New Licenses	268	194	213	230	223
Current Revenue Generating Agreements	544	528	545	575	571
Gross Revenues	$20.2	$46.9	$22.6	$16.1	$20.7
Outgoing Material Transfer Agreements	297	273	233	188	161
STARTUPS					
Startup Companies	16	17	18	13	19
INVENTIONS & PATENTS					
Invention Disclosures	354	402	406	400	391
New Patent Filings	146	202	232	179	163
New Patent Filing Rate*	41%	50%	47%	45%	42%
Issued Patents (US and Foreign)	136	168	147	186	187
MN-IP					
MN-IP Research Agreements	69	81	72	86	103
Companies w/ MN-IP Research Agreements	54	62	51	58	77
Sponsored Research Commitments	$10.8	$12.2	$20.9	$21.3	$22.5

Dollar amounts represented in millions
**New- Patent Filing Rate is the number of new patents filed during the fiscal year divided by the number of new disclosures in the same time period*
Technology Commercialization, Wellspring Sophia; U of M Enterprise Financial System

Corporate Engagement

UMN Technology Commercialization is nationally recognized as a leader in streamlining partnerships between businesses and the University. The groundbreaking Minnesota Innovation Partnerships (MN-IP), mentioned above, has been copied by many other technology transfer operations and is designed to make it easier for industry to work with the University, both in sponsoring research and in licensing technology. MN-IP (Progress Card Measure) has two programs:

- Try and Buy, a low-risk, low-cost means for companies to test University technology, including pre-set, industry-friendly licensing terms, that now includes 159 available technologies.

- MN-IP Create, a program designed and updated in response to industry feedback, which streamlines the process for industry-sponsored research and licensing of resultant IP. The menu of licensing options from which companies can choose includes fixed-fee and exclusive or non-exclusive licensing. Since its start, MN-IP Create has facilitated 522 agreements with 284 unique companies and $98 million in research sponsorship.

Technology Licensing

Table 3 shows FY2019 increases in key categories, including historically volatile gross revenues, which increased by 28.6% (all comparisons relative to FY2018); the number of University of Minnesota startups, up 46%; and, as sub-categories under MN-IP, the number of research agreements, up 19.8%, the number of companies having research agreements, up 32.8%, and the level of sponsored research commitments, up 5.6%. Other categories remained steady or showed a slight decline (less than 3%), including new licenses, current revenue generating agreements, invention disclosures, patent filing rate, and issued patents.

One strong area of University of Minnesota licensing is creative works, which are non-patented technologies such as questionnaires, assessments, curricula, procedures, designs, and educational games. They may be trademarked or copyrighted and are often ready to be licensed when the inventor discloses the invention. In FY2019, creative works earned $6.3 million in revenue from 109 licenses across 55 technologies and the University leveraged online automated licensing for over 1,000 transactions. Additionally, there were 27 technologies made available via online app platforms leading to more than 47,000 app downloads. Creative works come from colleges and centers across all UMN campuses. Some successful works include Carp Solutions management strategies for removing carp from waterways and lakes, Early Learning Labs/Renaissance Learning assessments for early childhood developmental delays, the Turing Tumble, which teaches children about computer programming, and Sensory Spaces for Children with Autism, a modular room design of sensory spaces for autistic children.

Building researchers' ability to work with industry
Partnering with industry offers researchers new opportunities to work on projects that address industry-relevant problems and benefit society. Business and industry-sponsored awards made up over $80 million of the U's research enterprise in FY2019 (See Table 1), and a record 103 MN-IP agreements were signed between the University and companies.

In 2019, Technology Commercialization collaborated with Sponsored Projects Administration (SPA) to launch a series of workshops aimed at inspiring researchers to partner with industry and helping them to navigate the steps involved in developing industry partnerships. While the workshops are most beneficial for faculty and post-doctoral researchers new to industry-sponsored research, those with prior industry experience have also gained insights into finding new partnerships. Due to enthusiastic community interest and positive feedback on the series, the team has already initiated a FY2020 workshop series.

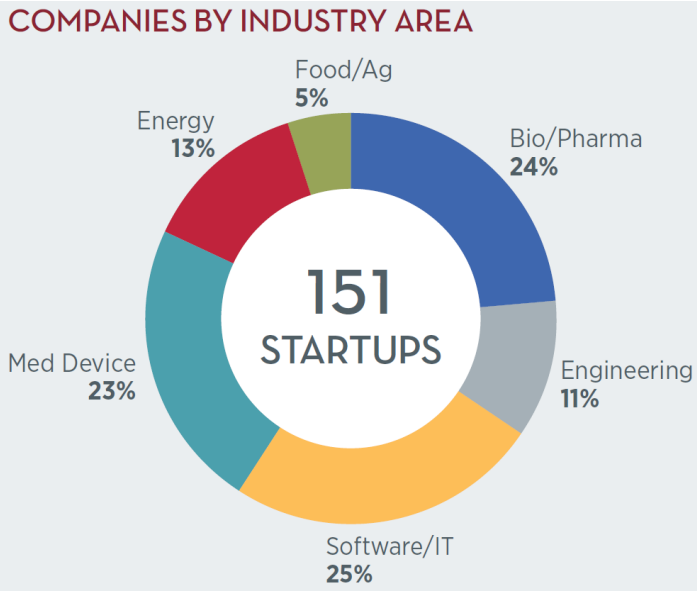
Inventor Recognition Event
Technology Commercialization's biennial Inventor Recognition Event honored outstanding faculty and staff from the University research community. Winners of the Innovation Awards were announced at the April 9th event and chosen from peer nominations for contributions to technology commercialization by a broad-based awards committee. The 2019 Innovation Awards went to: Branden Moriarity, Medical School, Early Innovator Award; Jian-Ping Wang, College of Science and Engineering, Entrepreneurial Researcher Award; Jim Luby and David Bedford, College of Food, Agricultural and Natural Resource Sciences, Impact Award; and Kenneth Beckman and Daryl Gohl, UMN Genomics Center, and Dan Knights, College of Science and Engineering, Committee's Choice Award. One can learn more about the Innovation Awards and see short videos about the winners at z.umn.edu/inventor-recognition.

Venture Center

Over the last year, Tech Comm's Venture Center launched a record 19 startup companies based on discoveries and inventions by University researchers. The new startups, which derive from inventions spanning many sectors (Table 4), contribute to the economy and the public good, both in Minnesota and across the globe.

The record number of new startups coincides with another success in the U's startup enterprise: eight startups have been acquired or gone public since 2017 — five of them in FY2019 alone. These successful exits demonstrate the ability of UMN technologies to quickly attract the attention of established companies who see the potential for further development and marketing.

Table 4: Supporting Minnesota's Entrepreneurial Ecosystem



Startups by Sector	FY19	FY06–FY19
Bio/Pharma	4	36
Engineering & PhySci	0	16
Software/IT	3	39
Med Device	8	34
Energy & Env	3	19
Food/Agriculture	1	7
Startups by Location		
Minnesota	11	113
Outside Minnesota	8	38
Total	**19**	**151**

Discovery Launch Pad

The Discovery Launchpad, which officially opened its doors in January 2019, is a startup business incubator developed by the Venture Center to provide expert coaching and support for individuals interested in forming startup companies to develop UMN technology. The Launchpad builds on a network of University resources that provide early-stage support for technology development, including MIN-Corps, MN-REACH, and Tech Comm's Business Advisory Group.

Discovery Launchpad's program starts with an assessment, where the company founders, including the researchers, meet with Launchpad advisors to discuss their discoveries and create a customized work plan. The startups then work in the Launchpad to create business, marketing, and sales plans, as well as working on financial management and developing a business pitch. Advisors with significant startup experience coach business teams through this process, which can take several weeks, and the Venture Center provides them with shared office space adjacent to its own. When this phase is finished, the startup officially launches, and continues to receive advising and support for the remainder of a two-year term.

Launch Minnesota

Launch Minnesota is a new initiative spearheaded by Minnesota's Department of Employment and Economic Development (DEED) to help grow Minnesota's startup ecosystem. UMN Technology Commercialization has been a partner and adviser to DEED's initiative through hosting DEED officials at its own events, publicizing Launch Minnesota's programs, and service on Launch Minnesota's Advisory Board.

MIN-Corps

MIN-Corps is the University's site for the National Innovation Corps (I-Corps), a National Science Foundation initiative that prepares scientists and engineers to extend their focus beyond the university laboratory and accelerates the economic and societal benefits of research projects through commercialization. University teams receive micro-grants to fund initial prototyping and customer research as part of an educational program in which innovation teams composed of STEM students, staff, and faculty are paired with industry mentors to conduct customer outreach and develop a sustainable business model. In addition, MIN-Corps delivers commercialization seminars to faculty and students to promote the University's entrepreneurial culture. About 550 faculty, staff, and students attended one or more MIN-Corps offering throughout the year. MIN-Corps programming emphasizes supporting women inventors. In addition to encouraging women to participate in its regular workshops, it hosts an annual Women Innovators Conference targeted to STEM-trained students, faculty, and professionals who identify as women that attracts approximately 150 participants.

MIN-Corps is an integral part of the innovation ecosystem, and partners with multiple units across the U, including the Technology Commercialization Venture Center, the Holmes Center for Entrepreneurship in the Carlson School of Management, MnDRIVE partners, and many colleges and departments. Some other recent indicators of success include:

- Approximately 30% of the technologies in the Technology Commercialization Venture Center startup pipeline participated in MIN-Corps programs, consistent with the prior year
- 9 teams were accepted to I-Corp National Team cohorts (total of 18 accepted since 2014)
- $1.5 million of SBIR/STTR grants and investment funding was raised in FY2019 (total of $12.7 million since 2014)
- MIN-Corps was involved with 7 startup companies in FY2019 (total of 22 since 2014)

MN-REACH

In 2015, the University was one of only three institutions awarded a National Institutes of Health Research Evaluation and Commercialization Hub (REACH) grant in the NIH pilot program. When combined with University matching funds, these grants totaled $6 million that supported coaching, external consulting, and funding selected teams over three years. MN-REACH has provided University-wide commercial expertise and resources to help develop and commercialize diagnostics, therapeutics, preventative medicine, and medical devices. The program offered a skills development and coaching curriculum for both applicants and awardees, and a business strategy and commercialization plan for 41 promising projects addressing 35 unique, unmet clinical needs. MN-REACH funding helped to support faculty in the launch of four companies, five licensing options, and a number of clinical trials, including a high-profile acute myeloid leukemia first-in-human GTB-3550 phase i/ii clinical trial conducted at the University of Minnesota's Masonic Cancer Center.

Research Incentivization and MNtersections

The University of Minnesota oversees a number of programs and initiatives designed to support and nurture a diverse research portfolio with investments aimed at incentivizing both growth and innovation. These programs provide a broad range of resource opportunities designed to meet the needs of a diverse population of researchers. From smaller awards provided to jump-start new ideas to very large awards designed to incentivize collaborations across disciplines that address strategic needs—the latter usually inspired by Minnesota, but also typically having global impact—these awards seed research that has the potential to attract sustaining external support. Additional programs exist to leverage external support for which internal matching funds are required, to acquire critical infrastructure having the potential to accelerate the progress of multiple researchers, and to help translate the products of basic research closer to the marketplace when such translation has the potential to accelerate the transfer of knowledge for the public good.

OVPR Research Advancement Programs

Over the past five years, research advancement funding programs under the Office of the Vice President for Research (OVPR) have provided more than $25.1 million ($35.4 million with matching funds) to researchers. See below for the primary programs administered by the OVPR.

Grant-in-Aid
The Grant-in-Aid of Research, Artistry, and Scholarship Program provides grants to support scholarly and artistic activities of faculty and their graduate students to foster excellence. Grant-in-Aid (GIA) projects represent the breadth and depth of University research in all disciplines and fields. While any faculty can apply for GIA funding, it plays an especially important role by providing new professors and emerging researchers with opportunities to pursue research and scholarship that may not yet have received external funding. In the past five years, $13.2 million has been awarded through the GIA program. For every dollar invested, $4.30 in external funding was generated in fiscal years 2013-2017.

Grant Match
Some external funders require an institution to match funds to a specific grant activity. As grant processes become more competitive and federal funds stay relatively flat, the demand for such institutional matching funds continues to increase, resulting in higher levels of required institutional investment. The University works in partnership with colleges throughout the grant proposal process to coordinate the University's total commitment in matching funds, which averages $1.37 million annually.

Minnesota Futures
The Minnesota Futures program supports extraordinary research by nurturing interdisciplinary ideas. In 2019, two grants were awarded for a total of $ $491,542. They are supported by technology commercialization revenue and they fund research opportunities

that cross disciplinary and professional boundaries and support in-depth research that aims to address society's grand challenges. Since 2008, Minnesota Futures grants have supported research by faculty who go on to win substantial grants and whose innovations reach the market to potentially improve the lives of millions. For every dollar invested, $ 2.50 in external funding was generated in fiscal years 2012-2016.

The 2019 Minnesota Futures grants went to two projects: Reduction in fatty liver in young adolescents by polylactose, a novel prebiotic dietary fiber; and Ultra-Efficient Wide-Bandgap Power Converters: Material, Device, Circuit, and System-level Challenges and Opportunities.

Research Infrastructure Investment Program

The Research Infrastructure Investment Program is one way the University ensures it maintains robust, state-of-the-art equipment to support research and academic endeavors, even as federal funding for research stagnates nationwide. These improvements to research infrastructure are key to catalyzing research and innovation and support the University's talented researchers as they explore new ideas, form interdisciplinary partnerships, and make groundbreaking discoveries. In 2019, over $ 2.2 million was awarded to 15 research projects, reaching 14 departments, units, and centers; five colleges; and three campuses (Twin Cities, Duluth, and Morris). Supporting colleges or centers provide one-to-one matching funds for each award. Awards support research infrastructure, facilities, and support services over a variety of University research areas including neuroimaging, dairy cattle health, nanotechnology, augmented and virtual reality, electron microscopy, metabolomics, and more.

University Grand Challenges Research

The Grand Challenges Research Initiative, which emerged from the October 2014 UMTC Driving Tomorrow strategic plan, aims to marshal the University's exceptional strengths to address society's most complex and pressing problems through the institution's five interrelated Grand Challenges:

- Feeding the world sustainably
- Assuring clean water and sustainable ecosystems,
- Fostering just and equitable communities,
- Enhancing individual and community capacity for a changing world, and
- Advancing health through tailored solutions.

The goal of the initiative is to identify and support best practices for the conduct of interdisciplinary/transdisciplinary research via various mechanisms that can lead to culture change and institutional transformation.

The initiative has awarded two-year grants to 41 interdisciplinary teams that include faculty from all colleges as well as undergraduate and graduate students and external partners. The most recent awards were made in January 2019. In addition to funding research teams, the initiative

has analyzed interdisciplinary opportunities for graduate students in conjunction with the Graduate School, and strategies for supporting transdisciplinary scholarship. Other institutional partners include OVPR and University-wide interdisciplinary centers. A program evaluation of the initiative was launched in fall 2019, and outcomes will be available in early 2020.

The University of Minnesota has gained national recognition for its focus on interdisciplinary work. The University's Initiative was profiled in the February 2018 report *University-Led Grand Challenges*, a guide and resource for universities that served as the launch of a new community of practice for institutions exploring or engaging with Grand Challenges. The University's unique approach to Grand Challenges was described in a September 2019 issue of *Inside Higher Education*.

Minnesota's Discovery, Research, and InnoVation Economy (MnDRIVE)

MnDRIVE is a research partnership between the University of Minnesota and the State of Minnesota that aligns five areas of research strength with the state's key and emerging industries to address grand challenges. In 2013, the State of Minnesota authorized an $18 million recurring annual investment in four research areas: Robotics, Global Food, Environment, and Brain Conditions. In 2017, the state appropriated another $4 million per year for a fifth research area: Cancer Clinical Trials.

MnDRIVE began as and continues to be a unique, collaborative research model engaging transdisciplinary teams of researchers across the University to address the MnDRIVE topic areas in partnership with industry and other community stakeholders. To maximize relevance and impact, each of the MnDRIVE areas has committees and advisory boards that provide guidance on research objectives. Success metrics are tracked across all 5 research areas to assess impact on education, industry relationships, economic development, and quality of life for Minnesotans. Some select MnDRIVE successes after its first five years include:

- 1,200 researchers engaged
- 400+ individual projects launched
- 150 departments and three campuses involved
- 750 personnel hired (UMN faculty, staff, & students)
- $360 Million in leveraged external funding (from $97 Million state funding)
- 303 invention disclosures by MnDRIVE researchers
- 35,000+ members of the public engaged through outreach efforts
- MnDRIVE-supported researchers at the University of Minnesota have leveraged the state's **$97 Million** investment, bringing in **$360 Million** in externally sponsored funding for research **from federal agencies like NIH, NASA,** and the **Dept. of Energy,** as well as **3M, the Parkinson's Foundation, PepsiCo, Boston Scientific, Midwest Dairy Assn. & many more.**

FY2019 is MnDRIVE's sixth year of funding and the researchers involved in MnDRIVE work disclosed 59 inventions for patents or licensing and have received more than $86 million in funding from external sources such as the National Institutes of Health, Medtronic, MN Soybean Research & Promotion Council, and Bluebird Bio.

Research Advancement and Development Professionals Network (RADPN)

RADPN is a volunteer organization that provides professional development, training, and networking opportunities to research advancement and development professionals at the University of Minnesota. The network has grown to include 180 staff, faculty, and graduate students from across the University of Minnesota system.

RADPN's work over the past year has focused on workshops and discussion sessions, red team reviews, and conference scholarships. RADPN held 6 well-attended workshops on topics including Building Cross-Collegiate Collaborations, Running a Seed Grant Program, and Data Sharing; and hosted a fall conference featuring an interactive workshop led by the immediate past president of the National Organization of Research Development Professionals. RADPN members also began offering "red team reviews," facilitated pre-submission reviews of interdisciplinary proposals that provide suggestions for improvement. Reviewed proposals included two major international development proposals, a large-scale interdisciplinary center, with several more in the pipeline for FY2020. RADPN provided several scholarships for members to attend research advancement-relevant conferences and share their experiences with the group, and the network plans to continue to provide scholarships in FY2020. Scholarships were matched by recipients' own units.

Strategic Partnerships and Research Collaborative (SPARC)

Launched in January 2019, SPARC is a research and innovation hub based at the University of Minnesota. It engages UMN researchers and practitioners, and peers across disciplines in the US and globally to establish new large-scale programs that catalyze collaboration, innovate for new discoveries, and deliver practical new solutions that address these critical challenges. SPARC promotes and advances external partnerships and projects that put our partners, faculty, staff, and students at the forefront of global innovation, impact, and change. The collaborative provides a comprehensive supporting structure that allows local to global partners and faculty and staff from across the University system to build interdisciplinary and multi-sectoral programs to solve complex challenges.

SPARC has held 60 introductory meetings and "collision events" bringing together over 400 scholars and partners from different disciplines together around project themes and opportunities, is currently working with several University of Minnesota teams on large-scale project proposals, and has one multidisciplinary project in progress, Laboratory Capacity Building and Implementation of Enhanced Surveillance for Leptospirosis and Melioidosis in Puerto Rico. This project is developing and planning to implement a surveillance system in Puerto Rico to identify and treat cases of common bacterial infections earlier, better define at-risk areas and predominant local risk factors, and inform prevention recommendations.

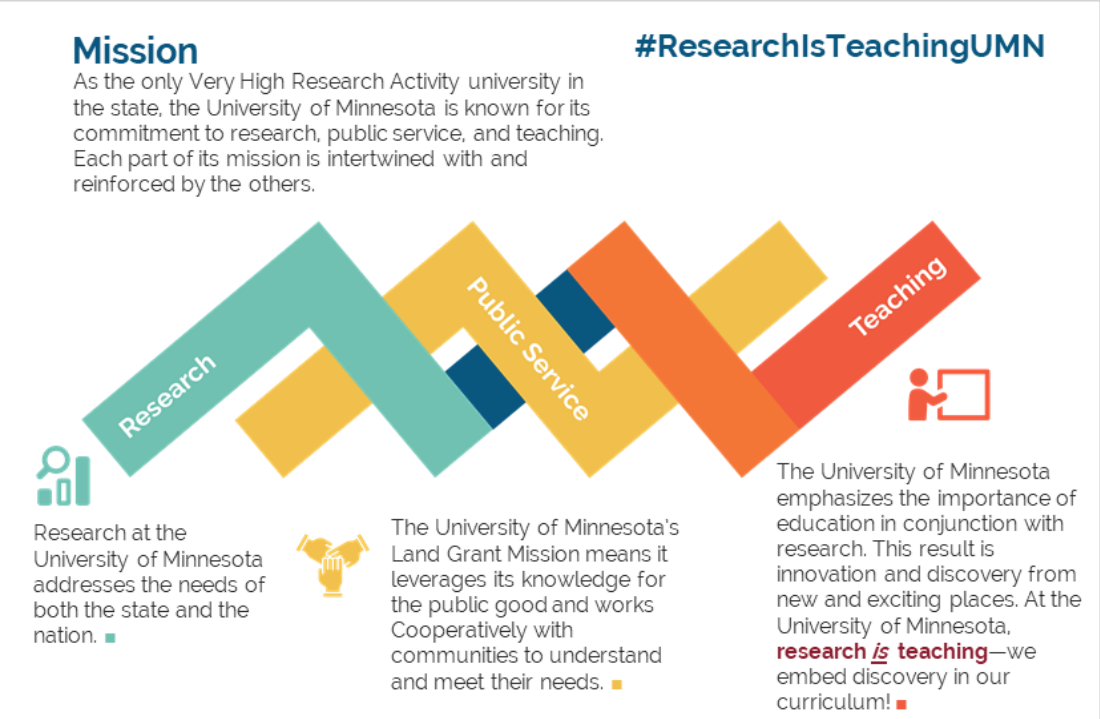
Research is Teaching!

A key goal of the University is to incentivize students to participate in research opportunities that are broadly available to them. As Minnesota's only major research university, we prepare students to be the innovators of tomorrow by training them in the practices of research and discovery. And the training is doing: it is the students themselves who create new knowledge from their work, present their findings to national and international audiences, and contribute to the scholarly record in profound and meaningful ways. Major programs supporting student research experiences include:

- Undergraduate Research Opportunities Program (UROP)
- Research Experience for Undergraduates (REU)
- Interdisciplinary Doctoral Fellowships (Graduate School)
- Undergraduate major requirements and
- Grand Challenges initiatives of the Twin Cities campus

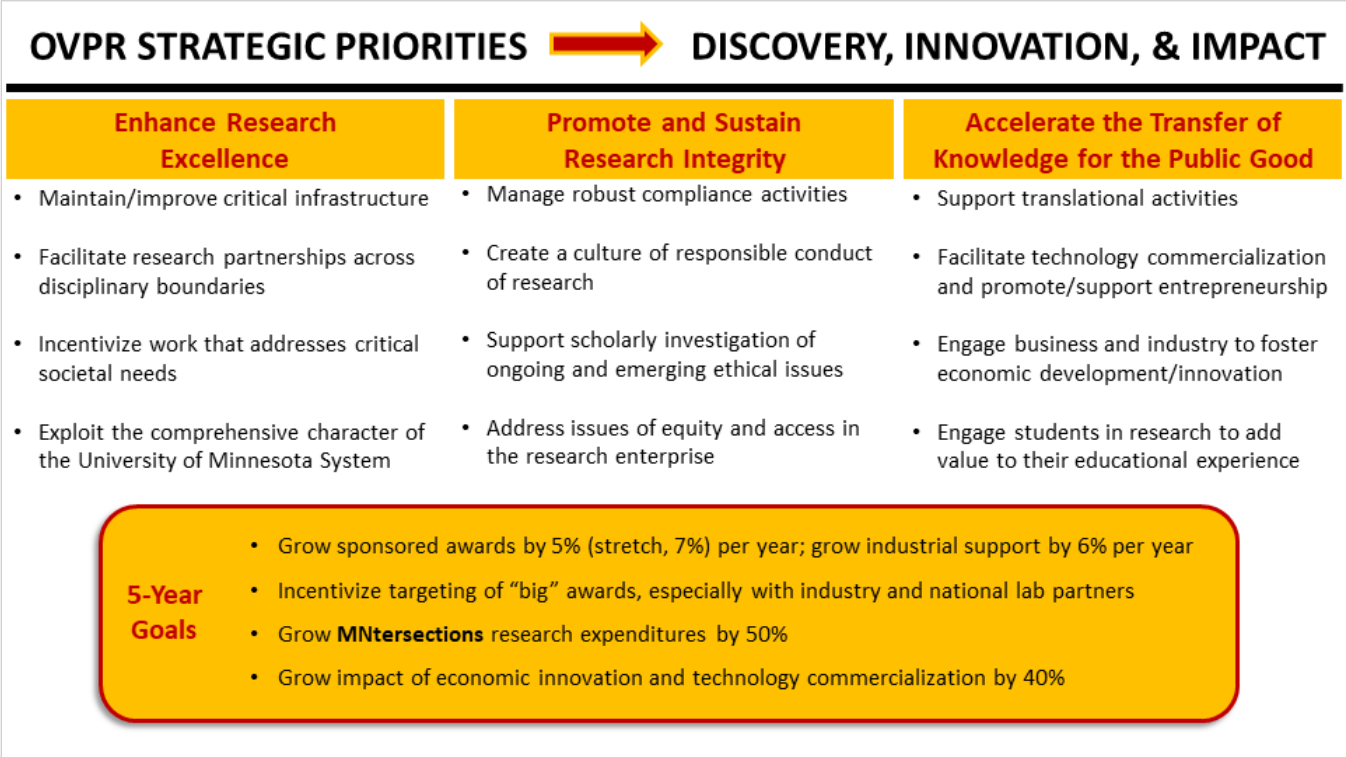
Many are designed to tightly couple curricular offerings with ongoing research in order quickly to translate results from the field/lab/clinic to the classroom, thereby equipping our students with the knowledge and expertise most in demand in the marketplace.

According to the 2018 Student Experience in the Research University (SERU) survey, 22.6% of undergraduate students at the U of M who responded to the survey (~30% response rate) reported that they have assisted faculty in conducting research.



Research Strategic Directions *for the Next 5 Years*

Earlier this fall, as part of the systemwide strategic planning effort, OVPR began a conversation about the future of our research enterprise, exploring possible research goals designed to be ambitious, measureable, and developed with the particular needs of the state of Minnesota in mind. Those goals were chosen to be fully consistent with the tightly coupled natures of the research, teaching, and public service missions of the institution, such that they should not only advance the research mission, but should also enhance the student experience and benefit the community at large, whether through direct engagement or economic development.



To continue to attract the best researchers as teacher-scholars to the University, it is critical that we maintain, and better still advance, our national ranking in terms of research awards and expenditures. Over the last 10 years, the University has seen an average growth in sponsored funding of 3.5% per year, suggesting that a goal of 5% is ambitious, and that a stretch goal of 7% may be achievable with optimal leverage of certain key resources, e.g., the new University of Minnesota/Fairview joint enterprise.

In addition to growing sponsored awards overall, it is critical that we grow the portion of awards that come from industry. Working with industrial partners offers unique opportunities for possible technology commercialization, professional development for participating students, and in many instances advances the interests of companies having significant activity in the state of Minnesota.

One way to accelerate progress towards the above goals is to facilitate researchers' ability to target "big" awards. Such awards are often multi-institutional, involve strategic industrial or national laboratory partners, and carry with them not only substantial funding but also significant reputational capital. The recently constituted Strategic Partnerships and Research Collaborative (SPARC) in OVPR is designed precisely to offer the relevant facilitation and other means to grow the portfolio of such awards merit implementation.

With respect to research grand challenges, Minnesota itself presents many opportunities for researchers to work locally and have impact globally. Importantly, many of these challenges can be most effectively addressed by harnessing research capabilities across the University of Minnesota system as a whole. Of particular note—and offering particular opportunity to collaborate with key industrial and/or governmental partners—are topics associated with environmental stewardship, evolution of medical devices and care strategies, and sustainable food and agricultural practices. Developing appropriate metrics and seeking to grow the "systemness" of our research effort 50% in the next 5 years is a worthwhile goal around which to rally.

Technology commercialization is one key mechanism used by the University to accelerate the transfer of knowledge for the public good, and thus growing outputs associated with technology transfer is an important strategic direction. However, as a recent external review (spring 2019) emphasized, "…investments made by the UMN are long term investments, that any return on investment is a bonus, that licensing revenues cannot be expected to occur annually or at all, are often derived from single commercialized patents, and that the work of [Tech Comm] must be considered as 'impact over revenue', to include the impact of startups, jobs, economic development and other measures", so it will be important to select a set of output metrics that do not inappropriately incentivize behavior that is in fact counterproductive (e.g., a focus on growing the number of patent applications per year might prompt reduced critical judgment on the likelihood of positive returns on investment associated with specific inventions). Once appropriate measures are adopted, however, achieving 40% growth in 5 years seems a solid target for which to shoot.

Finally, we should never forget that offering opportunities for undergraduate students to engage in our cutting-edge research enterprise is what makes the University of Minnesota so special in the state's higher educational spectrum. The University already provides many ways in which undergraduates can pursue a research experience, but in only some programs is it a requirement that they do so in order to graduate (one notable example in this latter category being the Rochester campus). It seems appropriate to discuss whether such a requirement is indeed appropriate systemwide, how a research experience should be precisely defined, and what resources would be needed to make such experiences meaningful within each major and program's specific context.

ANNUAL REPORT

STATUS OF RESEARCH AND TECHNOLOGY COMMERCIALIZATION

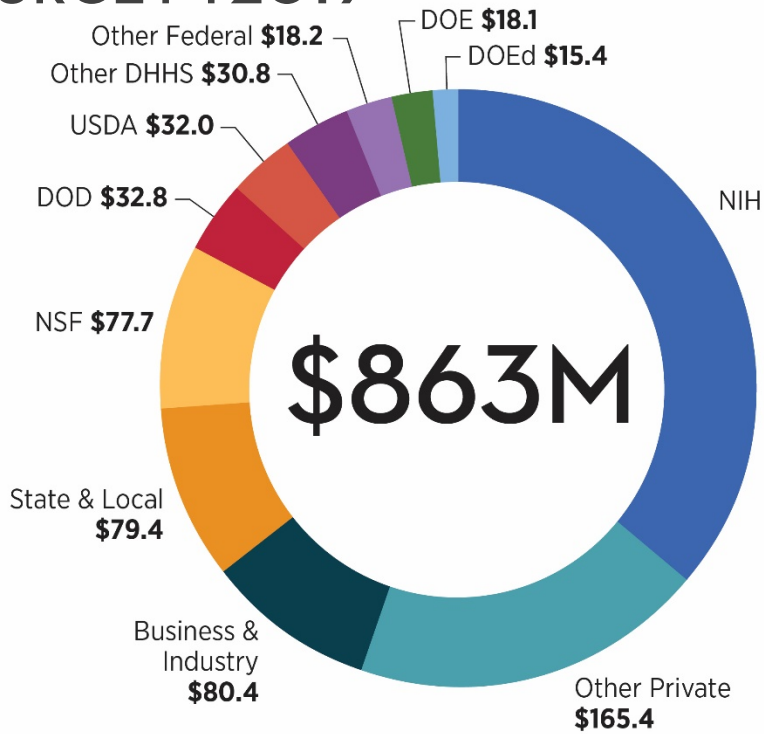
December 2019

UNIVERSITY OF MINNESOTA
Driven to Discover℠


PARTNERSHIP
DISCOVERY
INTEGRITY
UNIVERSITY
OF MINNESOTA
Driven to Discover

RESEARCH STATISTICS

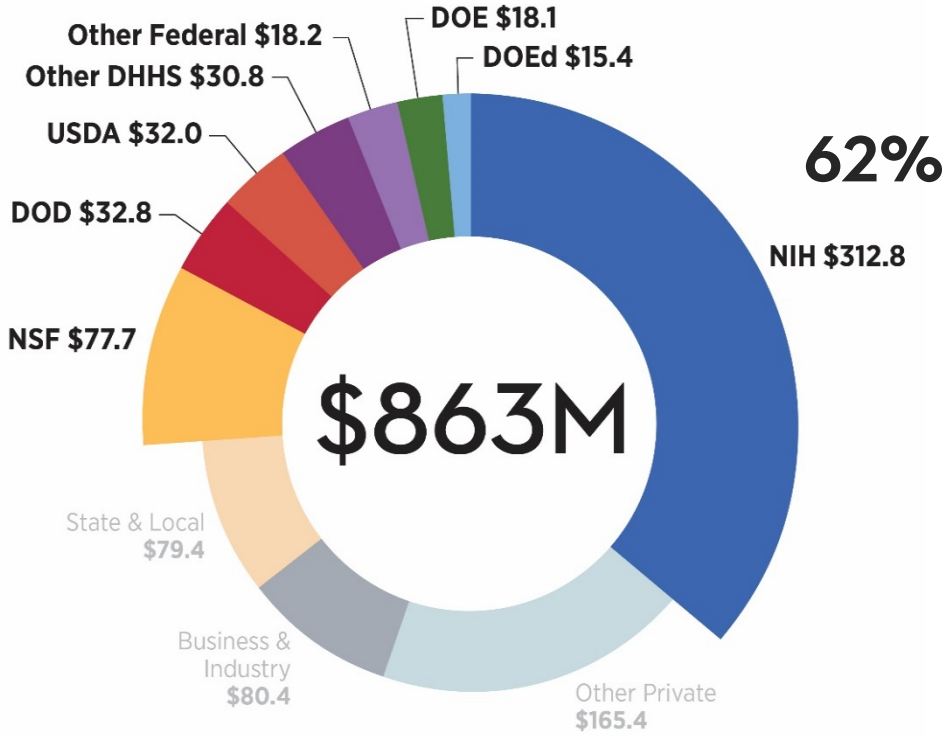
AWARDS BY SOURCE FY2019



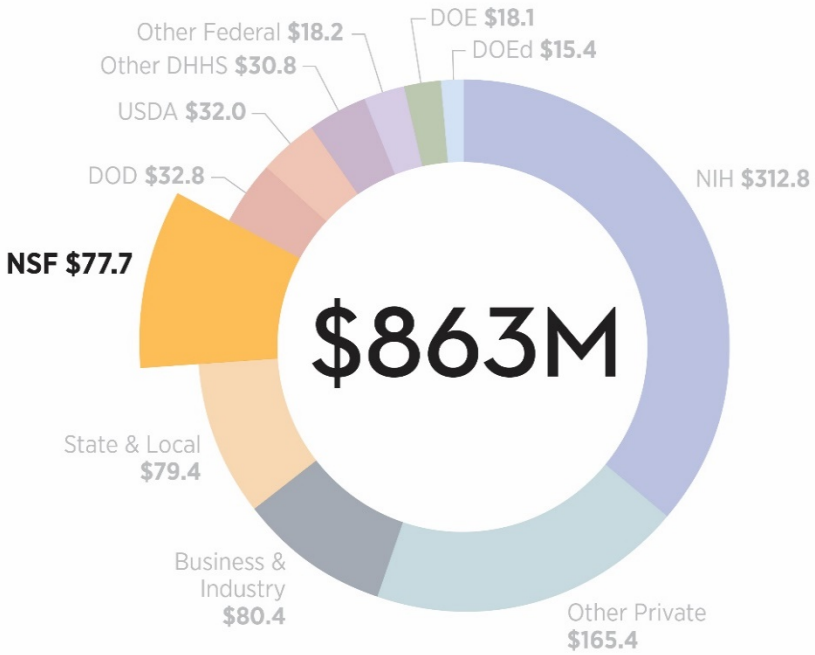
8.8% over previous year

Federal agencies: DHHS: Dept. of Health and Human Services • DOEd: Department of Education • DOE: Dept. of Energy
NIH: National Institutes of Health • NSF: National Science Foundation • USDA: US Department of Agriculture
Dollar amounts shown in millions

AWARDS BY SOURCE FY2019: FEDERAL



AWARDS BY SOURCE FY2019



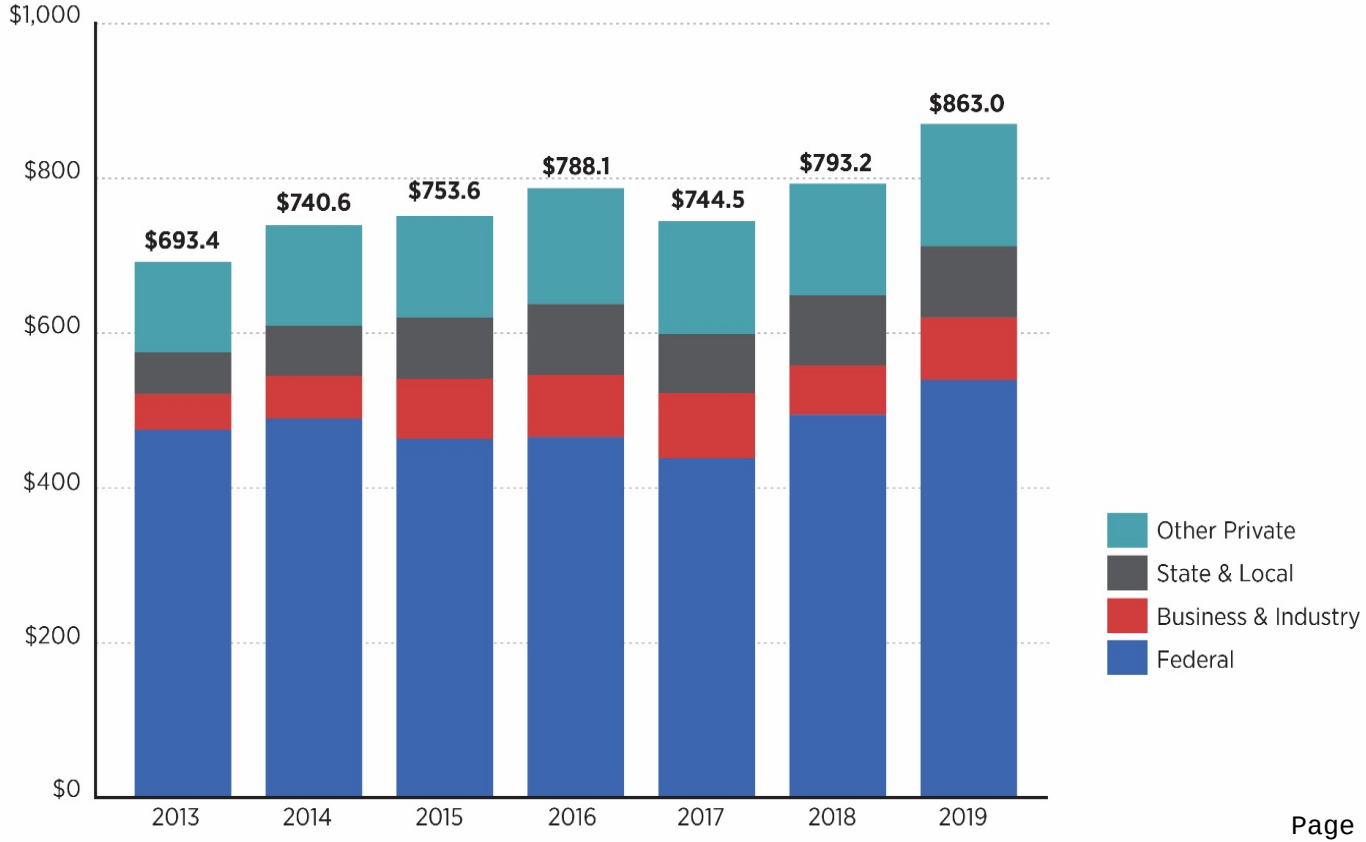
NSF: National Science Foundation
Dollar amounts shown in millions

USING BIG DATA AND MACHINE LEARNING TO ADDRESS GLOBAL HUNGER

UMN researchers are working to develop new machine-learning techniques that can help guide decision-making around food production and other urgent issues related to agriculture and the environment. The research, funded by a three year, $1.43 million grant from the National Science Foundation, brings together experts from the College of Science and Engineering, the College of Food, Agricultural, and Natural Resource Sciences, and the Minnesota Supercomputing Institute. The project draws upon the GEMS (Genetic x Environmental x Management x Socioeconomic) data platform. Additional support for the initiative comes from MnDRIVE.

PI: Vipin Kumar, Ph.D., Regents Professor and William Norris Endowed Chair of computer science and engineering in CSE; Co-PIs: James Wilgenbusch, director of Research Computing, and Philip Pardey, professor of applied economics and director of global research strategy in CFANS.

AWARDS BY MAJOR SOURCE FY2013-FY2019



Dollar amounts shown in millions

NATIONAL & GLOBAL ANALYSIS

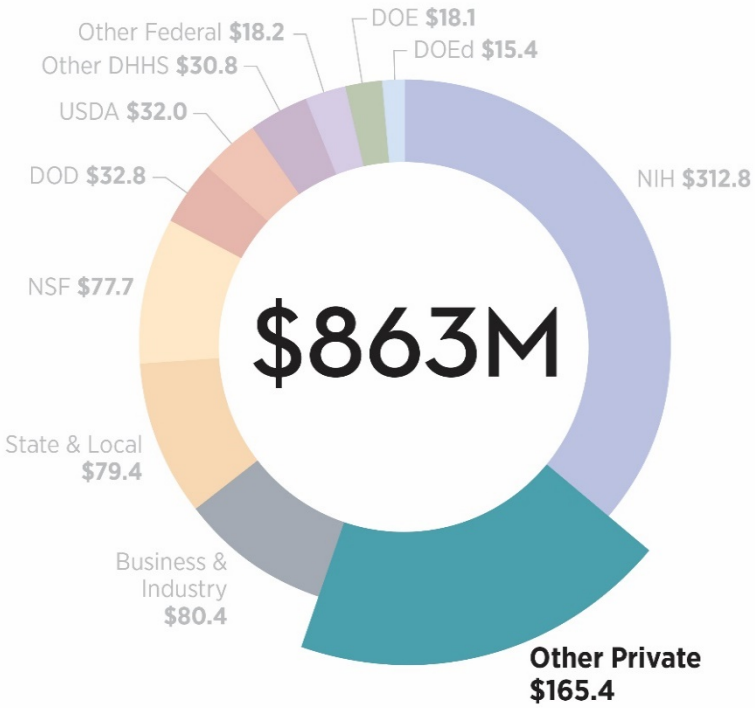
NATIONAL RANKINGS

	NSF / HERD 2018		CMUP 2018	ARWU (Shanghai) 2019		
	Public	Expenditures	Public	World	US	US Public
Michigan	1	$1,600,869	9 of 9	20	16	5
Wisconsin	6	$1,205,518	9 of 9	27	19	7
North Carolina	7	$1,136,158	9 of 9	33	23	8
Pittsburgh	8	$1,006,513	6 of 9	89	39	20
MINNESOTA – TWIN CITIES	**9**	**$954,683**	**9 of 9**	**41**	**27**	**11**
Univ Texas M.D. Anderson Cancer Ctr.	10	$929,710	2 of 8	68	34	17

All UMN campuses: $982M

CMUP: Center for Measuring University Performance • ARWU: Academic Ranking of World Universities
Dollar amounts shown in thousands

AWARDS BY SOURCE FY2019

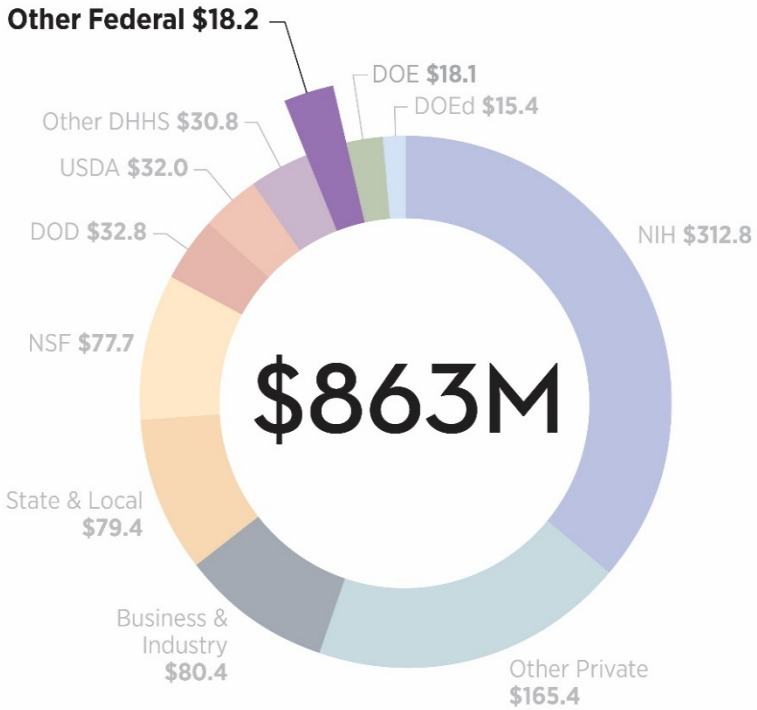


Dollar amounts shown in millions

IMPROVING PAIN MANAGEMENT AND OPIOID SAFETY FOR VETERANS

A major study, led by Erin Krebs, professor of medicine at the U of M and chief of General Internal Medicine at the Minneapolis VA Health Care System, is comparing treatment options to help injured veterans control their pain and take less opioid pain medicine. Opioids, frequently prescribed for chronic pain, are often ineffective and can have serious side effects. The project, which continues through 2021, was funded in 2016 through a $12.5 million award from the Patient-Centered Outcomes Research Institute (PCORI).

AWARDS BY SOURCE FY2019



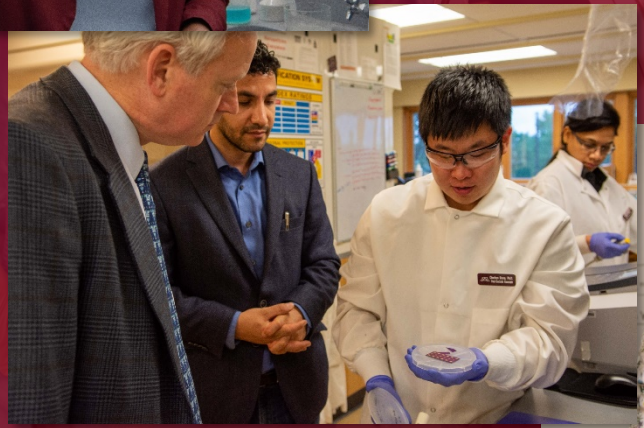
Dollar amounts shown in millions

BLUE-GREEN ALGAE A GROWING THREAT TO LAKE SUPERIOR

Unsightly blooms of blue-green algae were first observed on Lake Superior near the Apostle Islands in 2012, but a major bloom event in 2018 was particularly alarming to scientists and others monitoring environmental changes in the Great Lakes. Researchers at UMD's Large Lakes Observatory (LLO), including LLO director Robert Sterner and PhD candidate Kaitlin Reinl, who study cyanobacteria (blue-green algae), have been working to identify where the blooms are coming from and their causes. The researchers have teamed up with the National Parks Service (NPS) to collect data and consider all possible factors as they closely watch the lake for future significant blue-green algal blooms ($252,000 in awards from NPS).

TECHNOLOGY COMMERCIALIZATION & ECONOMIC INNOVATION

INNOVATION REQUIRES INNOVATORS!



...AND A LEADING TECHNOLOGY COMMERCIALIZATION OFFICE!

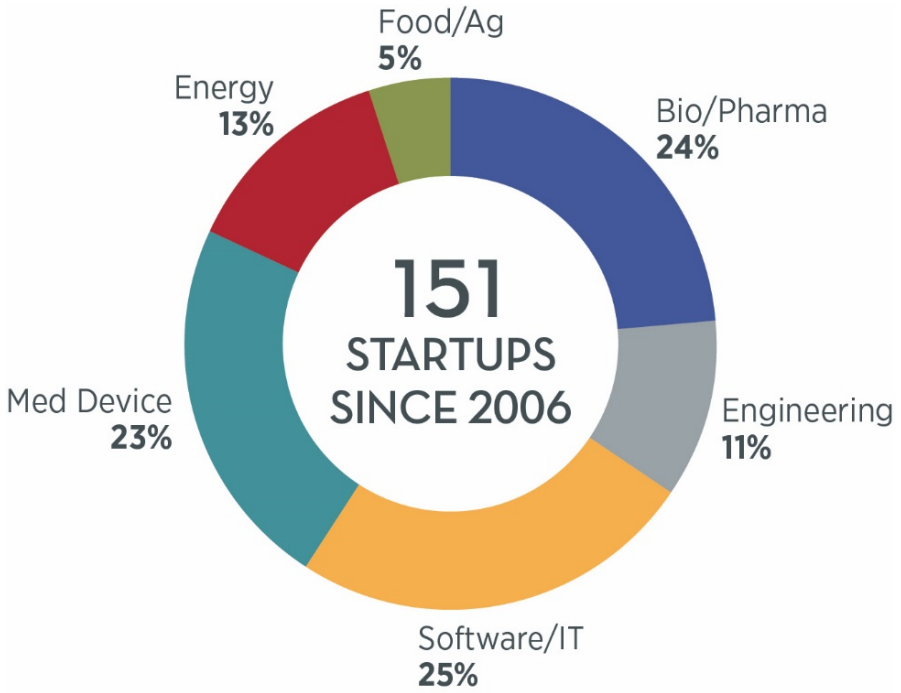
900+
ACTIVE PATENTS

1800+
CURRENT LICENSES

150+
STARTUPS LAUNCHED

UNIVERSITY OF MINNESOTA STARTUP ACTIVITY

Startups by Sector	FY19	FY06–FY19
Bio/Pharma	4	36
Engineering & PhySci	0	16
Software/IT	3	39
Med Device	8	34
Energy & Env	3	19
Food/Agriculture	1	7
Minnesota	11	113
Outside Minnesota	8	38
Total	**19**	**151**



MED TECH STARTUPS HELP DISCOVERIES REACH CLINICS, PATIENTS

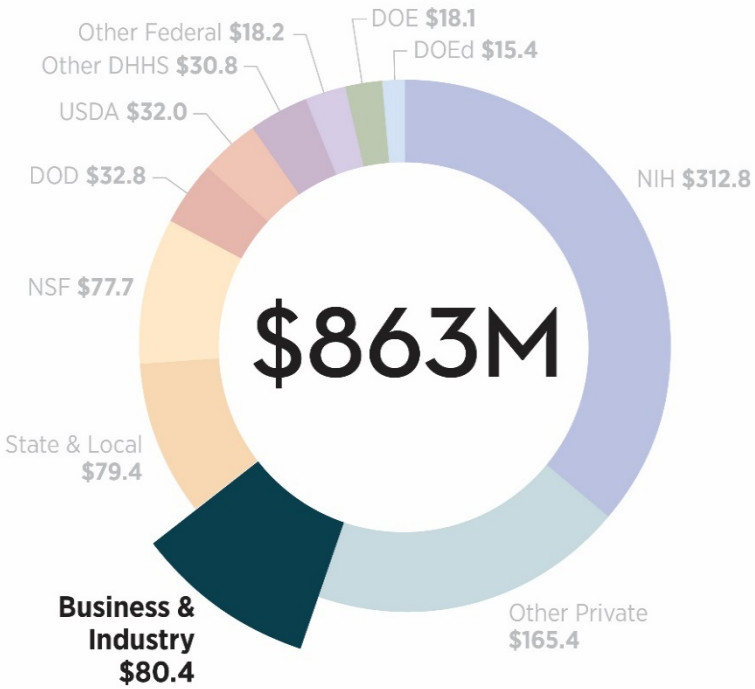
Since 2006, UMN researchers have helped to form more than 70 new companies based on medical discoveries. Most of those companies are headquartered in Minnesota, which is globally recognized as a leader in the medical device industry. One company, Vascudyne, is developing implantable heart valves and arteries made of living tissue that can match a patient's cardiovascular structure and can "heal" themselves to last longer inside the body.

TECHNOLOGY COMMERCIALIZATION

	2015	2016	2017	2018	2019
New Licenses	268	194	213	230	223
Current Revenue Generating Agreements	544	528	545	575	571
Gross Revenues	$20.2	$46.9	$22.6	$16.1	$20.7
Startup Companies	16	17	18	13	19
Invention Disclosures	354	402	406	400	391
New Patent Filings	146	202	232	179	163
New Patent Filing Rate*	41%	50%	47%	45%	42%
Issued Patents (US and Foreign)	136	168	147	186	187
MN-IP Research Agreements (w/SPA)	69	81	72	86	103
Companies w/ MN-IP Research Agreements	54	62	51	58	77
Sponsored Research Commitments	$10.8	$12.2	$20.9	$21.3	$22.5

** The New Patent Filing Rate is the number of new patents filed during the fiscal year divided by the number of new disclosures in the same time period*
Dollar amounts shown in millions

AWARDS BY SOURCE FY2019



Dollar amounts shown in millions

INDUSTRY PARTNERSHIP ADVANCES FILTRATION RESEARCH

Donaldson Company, a Minnesota-based global developer of technologies that solve complex filtration challenges for industrial and commercial applications, is working with UMN College of Science and Engineering scientists to research the fundamental interactions that drive liquid filtration. Donaldson has sponsored eight MN-IP (Minnesota Innovation Partnerships) projects at the University since 2015, and signed a master research agreement in 2019 to continue this research. The company will use the findings to better understand how filtration can be optimized to remove fuel and oil contaminants from filtration systems.

RESEARCH INCENTIVIZATION AND MNTERSECTIONS

GRAND CHALLENGE: IMPLEMENTING PRECISION MEDICINE ACROSS MINNESOTA

This Grand Challenges project seeks to bring pharmacogenomics, a leading form of precision medicine, to patients at a large scale, in partnership with providers and healthcare systems across the state of Minnesota. Tailoring the choice and dose of pharmaceutical treatments based on individuals' genetic characteristics, the basis of pharmacogenomics, holds great promise.

MnDRIVE
Minnesota's Discovery, Research, and InnoVation Economy

MnDRIVE at 5

MnDRIVE is a unique, collaborative research partnership between UMN and the State of Minnesota that aligns five areas of research strength with the state's key and emerging industries, as well as some of its most important challenges.

- 1,200 researchers engaged
- 400+ individual projects launched
- 150 departments and three campuses involved
- 750 personnel hired (UMN faculty, staff, & students)
- 303 invention disclosures by MnDRIVE researchers
- 35,000+ members of the public engaged through outreach efforts

#mndriveat5

MnDRIVE
Minnesota's Discovery, Research, and InnoVation Economy

MnDRIVE at 5

MnDRIVE-supported researchers at UMN have leveraged the state's **$97 Million** investment, bringing in **$360 Million** in externally sponsored funding for research from federal agencies like **NIH, NASA,** and the **Dept. of Energy,** as well as **3M, the Parkinson's Foundation, Pepsico, Boston Scientific, Midwest Dairy Assn.** & many more.


Robotics


Global Food


Environment


Brain Conditions


Cancer Clinical Trials

#mndriveat5

MnDRIVE
Minnesota's Discovery, Research, and InnoVation Economy

MnDRIVE at 5

In a recent survey, **MnDRIVE-**supported researchers reported a **greater sense of belonging and pride in Minnesota**.

#mndriveat5

Mission

#ResearchIsTeachingUMN

As the only Very High Research Activity university in the state, the University of Minnesota is known for its commitment to research, public service, and teaching. Each part of its mission is intertwined with and reinforced by the others.

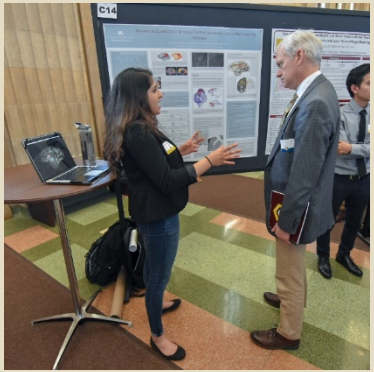
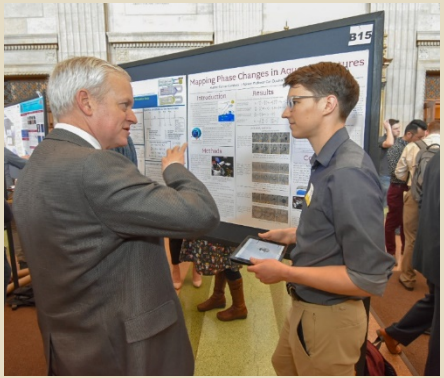
Research at the University of Minnesota addresses the needs of both the state and the nation.

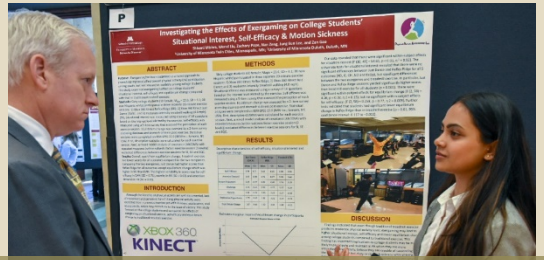
The University of Minnesota's Land Grant Mission means it leverages its knowledge for the public good and works cooperatively with communities to understand and meet their needs.

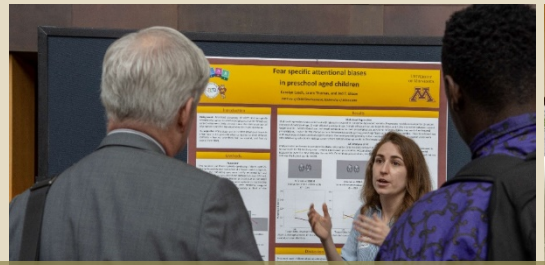
The University of Minnesota emphasizes the importance of education in conjunction with research. This result is innovation and discovery from new and exciting places. At the University of Minnesota, **research *is* teaching**—we embed discovery in our curriculum!

STUDENT RESEARCH DRIVES INQUIRY, EXPANDS OPPORTUNITIES

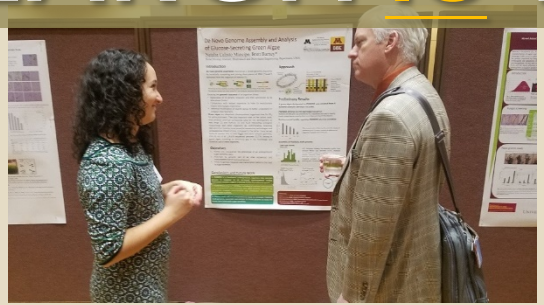
Students are involved in research across all disciplines and fields at the UMN. Kovic Odhiambo is an undergraduate statistics major in the College of Liberal Arts who participated in a summer internship conducting research in the College of Biological Sciences on bacteria's role in mitigating harmful environmental effects of fertilizer. The internship was offered through a collaboration between the North Star STEM Alliance and the MnDRIVE program. #ResearchIsTeachingUMN

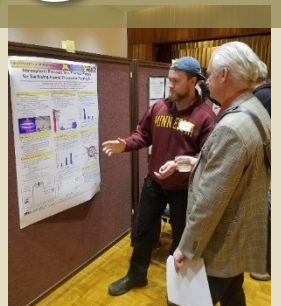







RESEARCH IS TEACHING





RESEARCH STRATEGIC PRIORITIES

Enhance Research Excellence

Promote and Sustain Research Integrity

Accelerate the Transfer of Knowledge for the Public Good

OVPR STRATEGIC PRIORITIES → DISCOVERY, INNOVATION, & IMPACT

Enhance Research Excellence

- Maintain/improve critical infrastructure
- Facilitate research partnerships across disciplinary boundaries
- Incentivize work that addresses critical societal needs
- Exploit the comprehensive character of the University of Minnesota System

Promote and Sustain Research Integrity

- Manage robust compliance activities
- Create a culture of responsible conduct of research
- Support scholarly investigation of ongoing and emerging ethical issues
- Address issues of equity and access in the research enterprise

Accelerate the Transfer of Knowledge for the Public Good

- Support translational activities
- Facilitate technology commercialization and promote/support entrepreneurship
- Engage business and industry to foster economic development/innovation
- Engage students in research to add value to their educational experience

5-Year Goals

- Grow sponsored awards by 5% (stretch, 7%) per year; grow industrial support by 6% per year
- Incentivize targeting of “big” awards, especially with industry and national lab partners
- Grow **MNtersections** research expenditures by 50%
- Grow impact of economic innovation and technology commercialization by 40%

UNIVERSITY OF MINNESOTA

Driven to Discover℠

research.umn.edu

DATA SOURCES

AWARDS BY SOURCE

AWARDS BY SOURCE

OVPR Research Data Services

TECHNOLOGY COMMERCIALIZATION

Technology Commercialization Wellspring Sophia System

U of M Enterprise Financial System

NATIONAL RANKINGS

National Science Foundation (nsf.gov/statistics/srvyherd/)

Center for Measuring University Performance (mup.asu.edu)

Note: Rankings are based on nine measures: Total Research, Federal Research, Endowment Assets, Annual Giving, National Academy Members, Faculty Awards, Doctorates Granted, Postdoctoral Appointees and SAT/ACT range.

Academic Ranking of World Universities (shanghairanking.com)

Note: Rankings are determined by several indicators, including alumni and staff winning Nobel Prizes and Fields Medals, highly cited researchers, papers published in Nature and Science, papers indexed in major citation indices, and the per capita academic performance of an institution.

PHOTOS

University of Minnesota

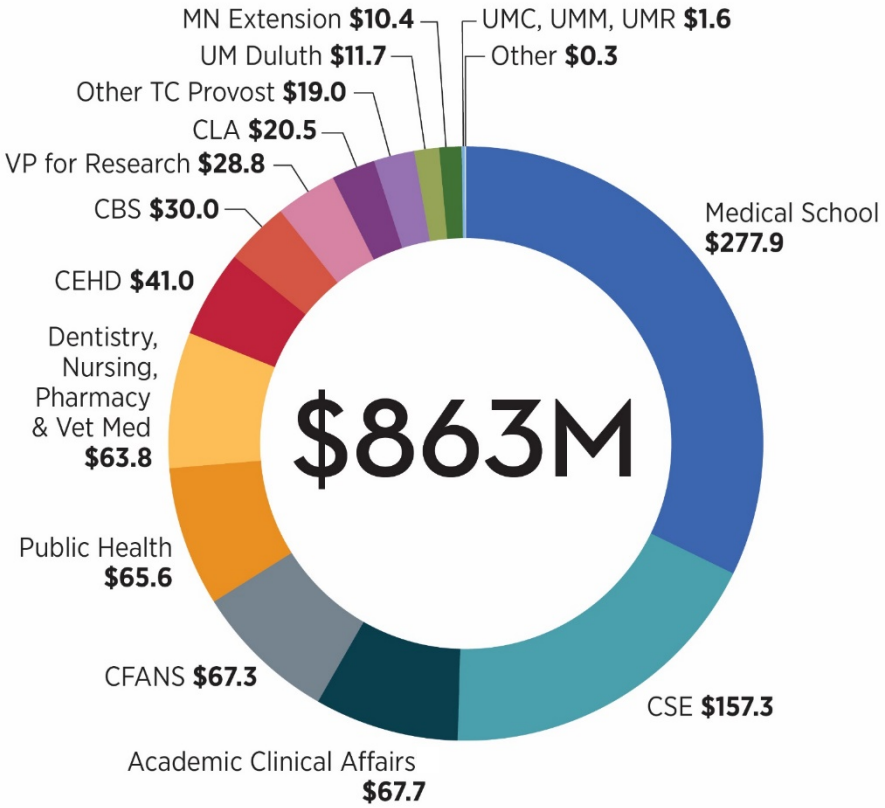
UMN Large Lakes Observatory

Holly Santiago

Dan Gilchrist

iStock

AWARDS BY COLLEGE & CAMPUS



Dollar amounts shown in millions

NATIONAL RANKINGS

All UMN campuses:
$982M

	NSF / HERD 2018		CMUP 2018	ARWU (Shanghai) 2019		
	Public	Expenditures	Public	World	US	US Public
Michigan	1	$1,600,869	9 of 9	20	16	5
UC San Francisco*	2	$1,595,732	5 of 8	20	16	5
Washington	3	$1,413,902	8 of 9	14	12	3
UCLA	4	$1,318,110	9 of 9	11	9	2
UC San Diego	5	$1,265,196	9 of 9	18	15	4
Wisconsin	6	$1,205,518	9 of 9	27	19	7
North Carolina	7	$1,136,158	9 of 9	33	23	8
Pittsburgh	8	$1,006,513	6 of 9	89	39	20
MINNESOTA – TWIN CITIES	**9**	**$954,683**	**9 of 9**	**41**	**27**	**11**
Univ Texas M.D. Anderson Cancer Ctr.	10	$929,710	2 of 8	68	34	17

CMUP: Center for Measuring University Performance • ARWU: Academic Ranking of World Universities
Dollar amounts shown in thousands

BOARD OF REGENTS
DOCKET ITEM SUMMARY

Mission Fulfillment **December 12, 2019**

AGENDA ITEM: Consent Report

☐ **Review** ☒ **Review + Action** ☐ **Action** ☐ **Discussion**

☐ *This is a report required by Board policy.*

PRESENTERS: Karen Hanson, Executive Vice President and Provost

PURPOSE & KEY POINTS

This month's consent report seeks Board approval of new, changed and discontinued academic programs, and approval of the human fetal tissue research report to the Minnesota legislature.

I. Request for Approval of New Academic Programs

- Carlson School of Management (Twin Cities campus)—Create a Master of Applied Business Analytics degree
- College of Science and Engineering (Twin Cities campus) —Create an M.S. degree and graduate minor in Robotics
- College of Science and Engineering (Twin Cities campus)—Create B.S. degree in Data Sciences
- College of Liberal Arts (Twin Cities campus)—Create a Certificate in Editing and Publishing
- School of Fine Arts (Duluth campus)—Create B.A. degree in Arts Administration

II. Request for Approval of Changed Academic Programs

- College of Liberal Arts (Twin Cities campus) —Change name of B.A. degree and undergraduate minor in Asian Languages and Literature to Asian and Middle Eastern Studies, and change the joint Hindi/Urdu subplan into two separate subplans
- College of Liberal Arts (Twin Cities campus)—Deliver the Scientific and Technical Communication minor online
- College of Liberal Arts (Twin Cities campus)—Discontinue the School Psychology subplan in the Psychology Ph.D.
- College of Liberal Arts (Twin Cities campus)—Discontinue Music Education subplan in the Music M.A. degree

III. Request for Approval of Discontinued Academic Programs

- College of Liberal Arts (Twin Cities campus)—Discontinue French Studies post-baccalaureate certificate
- College of Liberal Arts (Twin Cities campus)—Discontinue the Public Art minor

IV. Request for Approval of Human Fetal Tissue Research Report to the Minnesota Legislature

BACKGROUND INFORMATION

Board of Regents Policy: *Reservation and Delegation of Authority*, Article I, Section V reserves to the Board authority to approve tenure and/or promotion recommendations; the establishment of new academic programs; addition of formal tracks and of new sites for existing academic programs; discontinuance/merger of existing programs; and changes in program titles/degree designation.

Board of Regents Policy: *Reservation and Delegation of Authority,* Article I, Section I, Subd. 7 reserves to the Board authority to approve and submit any report to the State of Minnesota that impacts the University's autonomy or addresses the performance of the University and/or its major initiatives.

PRESIDENT'S RECOMMENDATION

The President recommends approval of the Consent Report.

University of Minnesota Board of Regents
Mission Fulfillment Committee
December 12, 2019

Consent Report

I. Request for Approval of New Academic Programs

- **Carlson School of Management (Twin Cities campus)—Create a Master of Applied Business Analytics degree**

  The Carlson School of Management on the Twin Cities campus requests approval to create a Master of Applied Business Analytics degree, effective fall 2020. This program combines technical learning in machine learning, artificial intelligence, applied statistics, optimization, econometrics, experimentation, data visualization, data engineering and big data with an understanding of how they may be applied in domains such as marketing, consumer behavior, operations, financial and risk management, information management, and strategic management in the public and private sectors. Program graduates will have quantitative capabilities and the technical expertise to extract useful insights from data and provide data-driven solutions to business problems in a variety of career settings. The proposed program makes use of existing courses and resources.

- **College of Science and Engineering (Twin Cities campus) —Create an M.S. degree and graduate minor in Robotics**

  The College of Science and Engineering requests approval to create a Master of Science (M.S.) degree and graduate minor in Robotics, effective fall 2020. The program provides a strong foundation in Robotics by offering expertise and educational assets in a single program that will focus on the areas of robot modeling and control, camera and perception sensors, and cognition to reason, plan, and make decisions. Students will learn state-of-the-art methods for developing and using robots, be exposed to cutting-edge technologies and theory forming the basis for the next generation of robots and their applications in areas such as agriculture, underwater exploration, autonomous driving, and manufacturing applications. Minnesota is at the frontier with global players such as 3M, Medtronic, Mayo, Honeywell, and Cargill looking for human talent that this program would provide. The proposed program makes use of existing courses and resources.

- **College of Science and Engineering (Twin Cities campus)—Create B.S. degree in Data Sciences**

  The College of Science and Engineering on the Twin Cities campus requests approval to create a Bachelor of Science (B.S.) degree in Data Science, effective fall 2020. The Data Science program is designed for students who want to learn the fundamentals of

statistical and algorithmic tools while also gaining experience with methods appropriate for managing and processing big data. The degree differs from the existing degrees because it combines substantial components in statistics, computing systems, and a number of data-driven applications and will prepare students for work in various industrial, governmental, and business positions. The proposed program makes use of existing courses and resources.

- **College of Liberal Arts (Twin Cities campus)—Create a Certificate in Editing and Publishing**

  The College of Liberal Arts on the Twin Cities campus requests approval to create a certificate in Editing and Publishing, effective spring 2020. The certificate provides students with the skills, knowledge, and experience necessary to enter the field of publishing and focuses particularly, but not exclusively, on literary publishing. Students take courses designed to introduce them to the process, protocol, and philosophy of editing, as well as the fundamentals of many other aspects of the publishing industry (project management, design and printing, publicity and marketing, sales and distribution, fundraising, copyright, and bookselling and book reviewing). The additional experiential learning requirement offers an immersive experience in one or more aspects of editing and publishing, intended to prepare them for employment in the publishing industry as well as a wide range of related fields. The proposed certificate program makes use of existing courses and resources.

- **School of Fine Arts (Duluth campus)—Create B.A. degree in Arts Administration**

  The School of Fine Arts on the Duluth campus requests approval to create a Bachelor of Arts (B.A.) degree in Arts Administration, effective spring 2020. The B.A. in Arts Administration will provide preparation for students seeking careers in the administration, management, and day-to day operations of arts programs, organizations, foundations, and arts-related industries and companies. The program will meet the growing demand for leadership and organizational acumen within arts and cultural organizations. Coursework combines business management, marketing, and administration both in business and the arts with experiences in arts practice, and has been developed in collaboration with the Labovitz School of Business and Economics. The proposed program makes use of existing courses and resources.

II. Request for Changes to Academic Programs

- **College of Liberal Arts (Twin Cities campus) —Change name of B.A. degree and undergraduate minor in Asian Languages and Literature to Asian and Middle Eastern Studies, and change the joint Hindi/Urdu subplan into two separate subplans.**

  The College of Liberal Arts on the Twin Cities campus requests approval to change the name of the Bachelor of Arts (B.A.) degree and undergraduate minor from Asian Languages and Literature to Asian and Middle Eastern Studies to align with the

departmental name change that was approved by the Board of Regents in May 2019. Additionally, the college requests to change the joint Hindi and Urdu subplans into two separate subplans, one named Hindi and the other named Urdu. Changes will be effective spring 2020.

- **College of Liberal Arts (Twin Cities campus)—Deliver the Scientific and Technical Communication minor online.**

  The College of Liberal Arts on the Twin Cities campus requests approval to deliver the Scientific and Technical Communication Minor online, effective spring 2020. The college plans for and allocates resources for online delivery options. Online delivery allows the college to provide broader alternatives to current and prospective students.

- **College of Liberal Arts (Twin Cities campus)—Discontinue School Psychology subplan in the Psychology Ph.D.**

  The College of Liberal Arts on the Twin Cities campus requests approval to discontinue the School Psychology subplan in the Psychology Ph.D., effective fall 2019. There are currently no students enrolled in this subplan and it has not been active for several years.

- **College of Liberal Arts (Twin Cities campus)—Discontinue Music Education subplan in the Music M.A. degree.**

  The College of Liberal Arts on the Twin Cities campus requests approval to discontinue the Music Education subplan in the Music Masters of Arts degree, effective spring 2020. This subplan has been replaced by a post-baccalaureate certificate. There are currently no students registered in this subplan.

III. Request for Approval of Discontinued Academic Programs

- **College of Liberal Arts (Twin Cities campus)—Discontinue French Studies post-baccalaureate certificate**

  The College of Liberal Arts on the Twin Cities campus requests approval to discontinue the post-baccalaureate credit certificate in French Studies, effective spring 2020. There are no students enrolled in the certificate program at this time.

- **College of Liberal Arts (Twin Cities campus)—Discontinue the Public Art minor**

  The College of Liberal Arts on the Twin Cities campus requests approval to discontinue the Public Art Minor, effective spring 2020. There are no students pursuing this minor and it is no longer being offered.

IV. Request for Approval of Human Fetal Tissue Research Report to the Minnesota Legislature

The President seeks approval of the 2020 *University of Minnesota Human Fetal Tissue Research Report to the Minnesota Legislature*. The Minnesota legislature requires the Board of Regents of the University of Minnesota to report disclosing specific information about university research projects which access donated human fetal tissue. The report is submitted annually to the chairs and ranking minority members of the higher education policy and finance, health and human services, and human services policy and finance committees.

University of Minnesota

Human Fetal Tissue Research

Report to the Minnesota Legislature 2020

University of Minnesota Human Fetal Tissue Research

Report of the Minnesota Legislature

As required by Minnesota Statute 137.47 which went into effect on July 1, 2017.

Submitted by:

Board of Regents

Prepared by:

The report was prepared by staff in the Office of Academic Clinical Affairs with the assistance of staff in the Office of the Vice President for Research at the University of Minnesota.

Report Preparation Costs:

Per the requirements set forth in Minnesota Statue 3.197, the cost to prepare this report was $300.

Purpose:

During the 2017 Minnesota legislative session, a law was passed requiring the Board of Regents of the University of Minnesota to submit an annual report to the chairs and ranking minority members of the higher education policy and finance, health and human services, and human services policy and finance committees. The report is required to disclose specific information regarding university research projects which access donated human fetal tissue (reporting requirements noted below).

Background:

In February 2016, the University of Minnesota instituted new requirements for researchers accessing donated human fetal tissue. Oversight of human fetal tissue research became administered jointly by the Office of the Vice President of Research and the Vice President of the Academic Health Center.

Per the new requirements, researchers requesting to access human fetal tissue were required to apply for permission to conduct research using human fetal tissue from the Fetal Tissue Research Committee (FTR) prior to commencing their studies. Approval from the Institutional Review Board (IRB) continued to be required if the research project met the criteria established under federal law and was to be in lieu of FTR Committee approval.

The Anatomy Bequest Program (ABP), a university anatomical donation program, became responsible for the acquisition, tracking and final disposition of the tissue.

The University of Minnesota has updated the fetal tissue policies to reflect the new requirements associated with the enactment of Minnesota Statute 137.47. The revisions also broadened the scope of the policies to include educational uses, clarified the responsibilities of researchers, delineated duties among the administrative units, and provided an opportunity to make housekeeping changes.

Report Requirements:

Per the requirements of Minnesota Statute 137.47, the following information must be included in this report: all fetal tissue research proposals submitted to the FTR or IRB, including any written narrative required under 137.47, subd.2; whether the research proposal involved aborted fetal tissue; action by the FTR or IRB on all fetal tissue research proposals, including whether the proposal was approved by the FTR or IRB; and a list of all new or ongoing fetal tissue research projects at the university. The list must include the date the project was approved by the FTR or IRB, the source of funding for the project, the goal or purpose of the project, whether the fetal tissue used is aborted fetal tissue or non-aborted fetal tissue, the source of the fetal tissue used, references to any publicly available information about the project, and references to any publications resulting from the project.

Per Minnesota State Statute 137.47, all required disclosures relating to University of Minnesota research projects which access donated human fetal tissue can be referenced below and/or in the attached table.

Research Submitted to and Approved by the Fetal Tissue Research Committee:

Since February 2016, there have been five applications reviewed by the FTR, four were approved. The four approved research requests were granted access to human fetal tissue which was donated following an elective pregnancy termination.

- FTR Application number 001-Zika Virus Infection of Human Fetal Brain Cells
- FTR Application number 002- AAV to CNS for MPS I (Mucopolysaccharidosis research)
- FTR Application number 003: Expression of Cyp26b1 and Slc6a4 in Developing Human Brains (depression and schizophrenia research)
- FTR Application number 004: Stem Cell Model of Neurofibromatosis

In addition to the four applications, two amendments to FTR 001 were approved. Only one FTR action, the FTR's approval of an amendment to application number 001 (amendment 2), commenced after the provisions of Minnesota Statute 137.47 went into effect on July 1, 2017. The application form used by the FTR was modified in 2018 to include a date field and require a written narrative from the researcher justifying not only the use of human fetal tissue, but also specifically fetal tissue from induced abortions.

Research Not Approved by the Fetal Tissue Research Committee:

In March 2019, a researcher had previously sought and received IRB approval as part of a study request with multiple research aims. The researcher subsequently received tissue samples following an autopsy of a fetus which had died of natural causes in utero. The researcher hadn't commenced the research when it was determined that this project also needed to be reviewed by the FTR. On November 11, 2019, the FTR determined that alternatives to fetal tissue were sufficient for the study. The Anatomy Bequest Program arranged for the cremation of the tissue per University policy.

- FTR ID number 1910-37498B-Pituitary Tumor Repository - Clarification of the Samplings.
- IRB Protocol, Version 2, Dated March 29, 2019-Pituitary Gland Repository

Research Update:

The FTR 001 study is the only ongoing study at this time and is in the process of performing genetic data analysis which will complete the active research, with possible publications to follow based on the research results.

The FTR 002 study has not been funded or acquired human fetal tissue. The FTR 003 study is discontinued at this time due to lack of funding. The FTR 004 study has been discontinued due to the researcher's departure from the University.

To date none of the approved protocols have resulted in a publication. There is no public grant award information since the research was privately funded. We are not aware of any references to other publicly available information about the projects.

FTR Application Number and Title	Application Date	Research Goal	Funding Source	Tissue Procurement Source
001-Zika Virus Infection of Human Fetal Brain Cells	5/18/2016 3/30/2017[1] 10/27/2017[2] 5/3/2018[3]	The goal of this project is to determine whether the Zika virus can directly infect cells that are found in the human fetal brain. At the present time there is an association between the presence of the Zika virus and damage to the developing human brain, but no direct evidence. We will determine the ability of the Zika virus to infect each of the different types of cells that are found in the fetal brain. Once we identify what types of cells can be infected then we will study the molecular mechanisms that are involved in the infection process. An understanding of these molecular mechanisms will allow us to begin consider what drugs might prevent the Zika virus from infecting the brain.	Privately funded	Birth Defects Research Laboratory -University of Washington Human Developmental Biology Resource-Newcastle University

Table 1: New or Ongoing University of Minnesota Research Projects Utilizing Donated Human Fetal Tissue

[1]Amendment to application requesting to add Newcastle as a procurement source

[2]Amendment to application requesting to add additional types of tissue to project

[3] Amendment to application requesting to remove 4 researchers from project

BOARD OF REGENTS
DOCKET ITEM SUMMARY

Mission Fulfillment **December 12, 2019**

AGENDA ITEM: Information Items

☐ **Review** ☐ **Review + Action** ☐ **Action** ☒ **Discussion**

☐ *This is a report required by Board policy.*

PRESENTERS: Karen Hanson, Executive Vice President and Provost

PURPOSE & KEY POINTS

This report includes select activities among faculty, staff, and students at the local, regional, national, and global level in the areas of teaching, research, outreach, and other academic achievements at the University.

BACKGROUND INFORMATION

This report appears as a regular item on the committee's agenda.

UNIVERSITY OF MINNESOTA
BOARD OF REGENTS

December 12, 2019
Mission Fulfillment Committee
Information Report

This report highlights select activities at the local, state, regional, national, and global level in the areas of teaching, research, outreach, and other academic achievements at the University.

University Highlights

University of Minnesota Duluth, Center for Regional and Tribal Welfare Studies based in the Department of Social Work, in the College of Education and Human Service Professions; was awarded a $600,000 federal grant to train tribal child welfare workers in partnership with the Leech Lake Child Welfare Program. It serves as an important bridge between American Indian tribes, academia and the community.

The Department of Family Medicine and Community Health at the University of Minnesota Medical School recently kicked off a yearlong celebration to honor the department's 50 years of advancing the practice of family medicine. The department is first in the country in total number of residency graduates—more than 2,000 to date. Of those graduates, about 70 percent choose to stay in and serve Minnesota.

The University of Minnesota College of Science and Engineering recently announced a three-year collaboration with Target that includes a $250,000 donation from Target to fund programs that will educate the next generation of cyber security experts. The gift helps build course curriculum and offers hands-on information security experiences, student scholarships, fellowships and grants, as well as opportunities for students to network with cyber security experts.

The Center for Applied Research and Educational Improvement will co-lead a five-year, $6.3 million grant from the U.S. Department of Education. A new partnership between the Center for Applied Research and Educational Improvement (CAREI), the Wisconsin Center for Education Research at the University of Wisconsin-Madison, and the Wisconsin-based nonprofit Education Analytics received funding for a project in which the goal is to improve the academic achievement of elementary and secondary school students by advancing the use of evidence-based practices.

Three startup companies based on University of Minnesota research received awards from the Minnesota High Tech Association. At a November 20 awards gala, U startups Anatomi and Calyxt received Tekne Awards, which shine a spotlight on Minnesota's science and technology community by honoring innovation across numerous industries. In addition, NovoClade won a Small Business Innovation Research Honoree award. Anatomi, promotes the discovery of new treatments for neurological diseases such as Alzheimer's, Parkinson's, and ALS. Calyxt, uses a gene editing technology known as TALENs to develop healthier and more resilient crops.

NovoClade, a synthetic biology company aims to control mosquito populations and their role in spreading disease.

A $92,000 grant award will help foster mentoring relationships between high-school students, college students, and researchers at the University of Minnesota Crookston. A project to increase participation by women and minorities from rural areas in science, technology, engineering, and mathematics (STEM) as well as the areas of food, agriculture, natural resources, and human (FANH) sciences has been funded by the USDA.

The University of Minnesota School of Nursing has been awarded the Health Professions Higher Education Excellence in Diversity (HEED) Award from INSIGHT Into Diversity Magazine for the fourth consecutive year. The school's educational programming and opportunities to develop diversity, equity and inclusivity competencies and its efforts to recruit and retain diverse and underrepresented students and faculty factored into its selection as a HEED Award recipient.

Faculty and Staff Activities and Awards

Amanda Sullivan, Department of Educational Psychology, received a new $1.25 million grant to support interdisciplinary training to advance learning disability services in Minnesota. Project I-LEAD: Interdisciplinary Learning Disability Education to Advance Development is part of the federal Interdisciplinary Preparation in Special Education, Early Intervention, and Related Services for Personnel Serving Children with Disabilities who have High-Intensity Needs program. It provides funding for the preparation of 18 school psychologists and special educators with expertise in research-based supports and individualized instruction for students with high-intensity learning disabilities.

A team of researchers led by Claudia Fox, Pediatrics and co-director of the Center for Pediatric Obesity Medicine at the University of Minnesota, has received a five-year, $3.2 million grant to study treatments for severe obesity in adolescents. The grant is awarded by the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health.

Michael-Paul Schallmo, PhD, Department of Psychiatry, recently received a $740,000 grant to begin using vision as a tool in studying schizophrenia

Brad Clary, Law School has been named the 2020 recipient of the prestigious Thomas F. Blackwell Memorial Award for outstanding achievement in the field of legal writing. This distinguished award is presented annually by the Association of Legal Writing Directors (ALWD) and the Legal Writing Institute (LWI) to a person who has made an outstanding contribution to improve the field of Legal Writing.

John Loegering, professor of natural resources at the University of Minnesota Crookston, was recognized as a Fellow of The Wildlife Society Fellows Award (TWS). With the award, Loegering joins a prestigious and distinctive group of professionals with a legacy of service and a wealth of contributions to the wildlife ecology and management field.

A team led by Carol Cardona, DVM, PhD, Department of Veterinary and Biomedical Sciences, and Andrew Broadbent, DVM, PhD, at the Pirbright Institute will use $1,025,000 in funding from the Agriculture and Food Research Initiative of the United States Department of Agriculture's National Institute of Food and Agriculture to define how infectious bursal disease virus (IBDV) affects the transmission of diseases caused by influenza A virus (the cause of avian influenza) in chickens. This funding from the USDA aims to improve animal health and economic outcomes in the poultry industry.

Student Activities and Awards

ALL IN Campus Democracy Challenge named the The University of Minnesota Twin Cities as "Best in Class" for large public universities during a recent ceremony in Washington, D.C. Students at the University of Minnesota Twin Cities voted at a higher rate in 2018 than at any other large, public, four-year institution in the country, according to a nationwide collegiate civics and engagement group. Due to that 58.7 percent voting rate, the Big Ten also recognized the University of Minnesota for its conference-leading voting rate on the same day.

Everaid Fokim is one of six students in the University of Minnesota School Of Dentistry's dual degree dental hygiene/dental therapy program who received a generous scholarship from the Delta Dental of Minnesota Foundation. Fokim will graduate in May 2020 with the dual degree and is encouraged by the growth in the dental therapy profession, which prepares graduates with all the skills of a dental hygienist plus specific restorative dentistry skills. He is interested in serving underserved communities in the Twin Cities after graduation.

Brian M. Sweis, PhD, University of Minnesota Medical School student, who also studied in the Graduate Program in Neuroscience, is the first student in the Medical School's history to receive the prestigious Donald B. Lindsley Prize in Behavioral Neuroscience by the Society for Neuroscience, supported by The Grass Foundation. This prize recognizes Sweis as having an outstanding PhD thesis in the general area of behavioral neuroscience and is typically awarded to one individual world-wide each year.

Meredith Song, Issraa Hussein, Destiny Weaver and Xianyi Xiong, four CBS undergraduates came away with the honors at the annual Equity and Diversity Breakfast. These students, from diverse backgrounds, were awarded for excellence in their work in the classroom and on campus with Scholarly Excellence in Equity and Diversity (SEED); which was demonstrated by their efforts in their studies and their impact on the campus and local community

Students in the University of Minnesota College of Science and Engineering (CSE) will present for four dazzling light shows designed by science and engineering students. The high-tech light show features more than 250,000 LED lights set to music written and recorded by University of Minnesota students.